

THE SOVIET UNION AND
STRATEGIC NUCLEAR WAR

Arthur Donald Nicholson

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THESIS

THE SOVIET UNION AND
STRATEGIC NUCLEAR WAR

by

Arthur Donald Nicholson, Jr.

June, 1980

Thesis Advisor:

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The Soviet Union
and
Strategic Nuclear War

by


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Captain, United States Army
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Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF ARTS IN NATIONAL SECURITY AFFAIRS

from the

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ABSTRACT

The strategic relationship which exists between the U.S. and the U.S.S.R. is an important consideration in charting the course of international relations in the remainder of this century. To understand the nature of this relationship, especially as it evolves in the SALT era, one must understand three fundamental realities of Soviet strategic policy. First, the interests of the Soviet Union, and the means selected in pursuit of those interests, are conditioned by an experience which is unique to Soviet Russia. This experience lacks sufficient commonality with that of the United States to serve as a basis for mutual cooperation and accommodation. Second, developments in the Soviet nuclear arsenal are designed to secure a position of strategic dominance from which Soviet influence can be exercised with relative impunity. Third, the Soviet view of nuclear war differs radically from that of the United States. Soviet strategic doctrine represents a realistic military approach to the problem of nuclear war, and consists of a set of war fighting guidelines which capitalize on the key principles of surprise, early seizure of the strategic initiative, and decisive use of nuclear weapons. This research, completed in June 1979, examines each of these three issues.

TABLE OF CONTENTS

I.	INTRODUCTION -----	7
II.	DETERMINANTS OF SOVIET STRATEGIC BEHAVIOR -----	15
	A. GEOGRAPHIC REALITY -----	15
	B. HISTORICAL TRADITION AND NATIONAL CHARACTERISTICS -----	17
	C. POLITICAL PROCESS -----	24
	D. ECONOMIC POLICIES -----	28
III.	STRATEGIC FORCES OF THE SOVIET UNION -----	33
	A. CALCULUS OF NUCLEAR POWER -----	33
	B. THE STRATEGIC ARSENAL -----	37
	1. Intercontinental Ballistic Missiles -----	37
	2. Submarine Launched Ballistic Missiles -----	44
	3. Strategic Bombers -----	49
	4. Strategic Defenses -----	53
	C. DEVELOPMENTAL TRENDS -----	56
	D. STATIC BALANCE OF STRATEGIC POWER -----	60
IV.	STRATEGIC DOCTRINE OF THE SOVIET UNION -----	69
	A. SOURCES OF SOVIET DOCTRINE -----	69
	B. DOCTRINE DEFINED -----	74
	C. LESSONS OF HISTORY -----	78
	D. THE NATURE OF MODERN WAR -----	80
	E. WAR PREPARATION -----	84
	F. MILITARY SUPERIORITY -----	88
	G. PHASES OF MODERN WAR -----	90

H. THE ELEMENT OF SURPRISE -----	94
I. TARGETING -----	99
J. ESCALATION -----	104
K. VICTORY -----	106
L. DAMAGE LIMITATION -----	108
V. CONCLUSION -----	113
FOOTNOTES -----	125
BIBLIOGRAPHY -----	142
INITIAL DISTRIBUTION LIST -----	153

I. INTRODUCTION

The nature of the relationship which exists between superpowers is one important factor which will influence world developments in the remainder of the Twentieth Century. One of the more discernible facets of this relationship, which is widely regarded by many as the most significant, concerns the strategic military balance which exists between the United States and the Soviet Union. The increased level of interest recently afforded this single element of an otherwise multifaceted relationship can in part be traced to the emergence of an equilibrium in strategic military capability which precipitated attempts to increase mutual security by moderating the growth of strategic weapons through negotiations. In the West this issue has fueled the long standing debate which polarizes on the question of the strategic capabilities and intentions of the Soviet Union.

Discarding the radical fringe at either end of the debating spectrum, one is able to identify two opposing philosophical positions. The liberal faction holds that unilateral restraint coupled with amicable negotiations offer the most promising means of reducing the threat of a nuclear confrontation. Secure in the belief that universal peace and tranquility are objectives shared by all, they maintain that the mere opportunity to limit forces supplemented with exemplars of restraint are the only preconditions necessary to the mutual relaxation of tension. The conservative faction advocates a return to a position of strategic superiority over the Soviet Union. Unwilling to trust fate in the hands of Soviet Russia, they argue that possession of overwhelming dominance

in strategic weapons is the only means of channeling international behavior along acceptable paths. The various positions taken in the course of this debate can be located between these idealistic and dictatorial extremes.

An analysis of the current deliberations on the strategic intentions of the Soviet Union, which has intensified in the U.S. debate over SALT, surfaces three fundamental issues which will be presented in the context of the ongoing discussions. The first issue is whether there exists a sufficient commonality of interests and objectives to serve as a basis for mutual cooperation. Is there a universal plane transcending national interests which can serve as a forum for the equitable resolution of common problems or are the differences between the competitive systems so enduring as to preclude such accommodation. One element of the national debate holds with the former interpretation. Paul Warnke, one-time Director of the U.S. Arms Control and Disarmament Agency, maintains that sufficient commonality exists to enable mutual concessions in the interest of survival.¹

The contrasting position argues that an equitable settlement of "common problems" is not possible precisely because the interests of each system are diametrically opposed. These and other spokesmen of this faction point to the various tenets of Soviet doctrine which define the course of world history in terms of enduring conflict as evidence of the inimicability of superpower interests.²

The second fundamental issue revolves around the trends evident in the development of Soviet strategic forces. Both sides recognize the increased military might of the Soviet Union. The differences emerge in understanding its cause, in forecasting its future direction, and in

conceiving of a means of moderating its pace. On the one hand, acceleration in Soviet strategic power is explained primarily as a function of the "action - reaction" pattern commonly associated with arms races. Soviet force developments are viewed as merely oriented toward redressing an imbalance.

Now there's no question of the fact that the Soviet Union's rate of expansion in recent years has been greater than that of the United States. We were first in building up the number of strategic weapons that we considered adequate for our security requirements. They have been forced to catch up or to accept permanent strategic inferiority.³

This pronouncement is invariably followed by an affirmation of the rough equality of strategic nuclear power which exists between the U.S. and the U.S.S.R. While specific asymmetries in force composition are conceded, the aggregate balance is believed symmetrical in the sense that each side is capable of delivering catastrophic devastation on the other. Negotiated limitation of strategic weapons is held to represent the only viable approach to the reduction of forces. Alternatives to mutual curtailment "are unacceptable: Appeasement, economic exhaustion resulting from an arms race, or a nuclear holocaust."⁴

The popular counter to this position acknowledges the previous existence of U.S. dominance in strategic capability and frequently recognizes the necessity of an approximate equivalence in strategic forces as a prerequisite to stability or negotiated limitation. It differs, however, in its reading of the trends displayed in the development of Soviet forces and in the prolonged existence of parallel capabilities. Citing evidence of disproportionate growth in strategic forces, continuous rejuvenation of weapons systems, and major advancements in technology, this faction concludes that Soviet behavior is inconsistent with a commitment to

"rough equality."⁵ Moreover, the presence of a credible U.S. second-strike capability, the cornerstone of a deterrent strategy, is questioned in light of the growing counterforce dimension of Soviet strategic weapons systems.⁶ While this element agrees that negotiated limitations offer prospects for moderating the pace of the "arms race," they argue that previous accommodations in SALT have placed the U.S. at distinct disadvantage. The only alternative to appeasement is believed to lie in the undertaking of prompt initiatives to upgrade strategic capabilities, and thus, from a position of strength, "persuade the Soviet Union to negotiate and accept a fair, balanced, and verifiable...agreement."⁷

A final issue of this debate is somewhat related to the first, in that it concerns differing perceptions of a common problem, viz, what strategic doctrine offers the greatest degree of security in a nuclear age? The Soviet response to this question has been the focus of considerable attention by the more conservative faction. It is somewhat difficult, in fact, to locate cogent arguments espoused by the more liberal camp to assuage the fears expressed by their opponents. The classic rejoinder to some of the more disconcerting aspects of Soviet nuclear doctrine holds that such thinking does not reflect serious commitment but is instead designed to achieve political impact. They contend that avowal of an aggressive militaristic doctrine supports two essential requirements of Soviet policy: first, it strengthens the solidarity and morale of the homefront; and second, it serves to bolster the credibility of Soviet nuclear forces.⁸ Another related interpretation, which downplays the content of Soviet doctrine, maintains that nuclear weapons have created a condition in which any thought of relative advantage after a strategic exchange is abstract and unrealistic. Commenting on the Soviet objective

of emerging from a nuclear contest better off than the opponent, Mr.

Warnke advises:

It seems to me that instead of talking in those terms, which would indulge what I regard as the primitive aspects of Soviet nuclear doctrine, we ought to be trying to educate them into the real world of strategic nuclear weapons, which is that nobody could possibly win.

As mentioned, the alternate position puts more credence in what the Soviets say about nuclear war. Members of this alliance place "stated intent" on a par with "observed capability" when debating Soviet objectives vis-a-vis strategic issues. Furthermore, they argue that intent and capability are mutually supportive. If trends displayed in the development of strategic forces parallel and reflect the stated principles of doctrinal thought, then the credibility of the latter is believed significantly enhanced. Richard Pipes, Harvard professor and Chairman of "Team B," cautions:

There is ample evidence that the Soviet military say what they mean, and usually mean what they say. When the recently deceased Soviet Minister of Defense, Marshal Grechko, assures us: 'We have never concealed, and do not now conceal, the fundamental tenets of our military doctrine,' he deserves a hearing.¹⁰

These three issues then, underlie the current debate. Despite the alarmist intensity with which these and other questions are frequently argued, this debate is not unique or peculiar to today's environment. It emerged long ago when existing institutions perceived a challenge to the status quo by a form of government previously alien to the international scene. It has, however, intensified due to the persistence with which that challenge has been issued, the strengthened position of the challenger, and the degree of vulnerability felt by those challenged. The selection of a response to this challenge is a delicate task. In doing so, extreme care must be exercised not to err on the side of caution

by underestimating reality or by allowing idealistic expectations to hinder rationality. Simultaneously, discretion must be employed to avoid over-reaction in the form of a "disproportionate response to a miscalculated challenge."

The discussion which follows examines the Soviet position on the three fundamental issues of this debate. It is hoped that this inquiry will surface and accentuate the salient points, and thus make a contribution to the ongoing debate which is likely to continue and intensify regardless of the outcome of SALT II, SALT III, or beyond. Chapter two consists of an analysis of Soviet behavior from the perspective of four key factors, and thus speaks to the problem of a commonality of interests and objectives which might serve as a basis for mutual cooperation. Relying on historical, geopolitical, and economic data, it introduces the reader to the nature of Soviet Russia by identifying some of the influences which condition Soviet perceptions. Chapter three addresses the strategic forces of the Soviet Union. Drawing on a wide variety of open source material, this section is designed to provide the layman with a basic understanding of Soviet strategic capabilities. It inspects the composition of the strategic arsenal, examines the trends displayed in its evolutionary development, and discusses the type of posture such an arsenal is likely to support. A brief comparison of Soviet and American forces is provided to place this assessment in perspective. Chapter four analyzes the Soviet view of nuclear warfare as discussed by that element of Soviet society charged with the responsibility of coping with it. This chapter consists of a content analysis of original Soviet statements prepared for distribution within the Soviet military elite. The primary source is Voyennaya mysl' (Military Thought), the monthly journal

of the Soviet Ministry of Defense and General Staff, portions of which have recently been declassified by the Central Intelligence Agency. Protected by Soviet security classification, the journal was circulated in restricted channels. This feature makes it an invaluable source of original and sensitive information on Soviet doctrine.

The potential shortcomings of this study are worthy of comment. First, it is concerned with only one side of a bilateral strategic relationship, and thus avoids the broader task of assessing the key issues from the perspective of the countervailing position. Moreover, addressing this subject in the context of a bilateral connection tends to overshadow the growing multilateral dimension of the international scene. The emergence of new powers and alliances, coupled with the inevitable proliferation of strategic nuclear weapons, will undoubtedly condition the future strategic thinking and behavior of the two superpowers. Second, this analysis concentrates on the strategic (nuclear) military situation to the exclusion of conventional or general purpose forces. The looming presence of large arsenals of weapons of mass destruction frequently eclipses the significance of more orthodox forms of military power. These, however, are nonetheless important in calculating overall military capabilities and intentions. A look at the growth, sophistication, and increased mobility of Soviet general purpose forces should highlight certain parallels with regard to the strategic forces.

Finally, this is not an analysis of the SALT experience. Although the reader will find reference to the effects of SALT on Soviet behavior, this study does not pretend to evaluate previous or pending agreements. It does, however, address the fundamental issues which underpin the debate on SALT. Too frequently this debate degenerates into chaotic bargaining

over extraneous details. Some argue that the Soviet lead in throw weight and yield is menacing and must be reversed. Others maintain that the aggregate number of U.S. warheads outnumbers the Soviets by a margin of two to one. To be sure, the details are important, but all too often they tend to obfuscate the substantive issues. Any accommodation which restrains numbers alone is at best a transitory solution. Such an approach ministers to the symptoms of an ailment without addressing the larger issue -- its cause. The purpose of this study is to investigate the cause.

II. DETERMINANTS OF SOVIET STRATEGIC BEHAVIOR

This chapter provides an assessment of selected determinants of the Russian/Soviet operational milieu to provide a foundation from which one can approach the comprehension of Soviet strategic thought. This is not to say that those factors selected represent the only variables which condition Soviet behavior. Indeed, numerous social scientists have devoted volumes to the delineation of relevant variables. The following, however, appear central to the nature of Soviet doctrine.

A. GEOGRAPHIC REALITY

The size, shape and latitude of a state are key determinants for two essential reasons. First, these factors affect the basic capabilities of a state in terms of resources, population, climate, production, trade, etc. Second, they form the "environment" which conditions the psychological outlook of its inhabitants.

The Soviet Union occupies one-sixth of the world's land surface. Measuring in excess of 8,600,000 square miles, it extends 6000 miles from East to West, 3,000 miles from North to South,¹¹ and is thus, more than twice as large as any other country. This "geographic generosity" offers numerous benefits, but also incurs certain strategic limitations. While this vastness endows plentiful natural resources,¹² it also presents obstacles to effective multifaceted communication and exploitation of those resources. The Soviet Union is less fortunate in terms of shape. Year-round access to deep water ports is limited to Murmansk in the West and Vladivostok in the East. In geopolitical terms, shape provides common borders with 12 nations.

The latitudinal location of the Soviet Union represents another obstacle to its ability to exploit its resources. The majority of its territory lies north of the 45° parallel. Such severe climatic conditions result in a short agricultural season. This problem is made more complex by a lack of adequate rainfall in areas where the soil is of high quality.¹³ It is also significant to note the impact of this type of climate on its inhabitants. To contend with such severe conditions requires a certain concerted dedication not necessary in more temperate latitudes.

Topographically, the Soviet Union consists essentially of a massive plain broken by the Ural mountain chain in the central region. Of note is the fact that there are no significant natural barriers in the West.¹⁴ Historically, this geographic feature has been cited as a factor which invited two major invasions of Russia, i.e., Napoleon in 1812 and Hitler in 1941. Additionally, it has been referenced as justification for the post war creation of a series of "buffer states" subordinate to Soviet domination. Richard Pipes provides an interesting counter to this "perceived need" by maintaining that due to the topographical nature of the Western plain, e.g., depth of defenses, low population density, transport difficulty, etc., Russia is itself the most difficult country to conquer, and therefore, requires no buffers.¹⁵

On balance, geography has endowed Russia with immense intrinsic wealth but has seriously complicated the development of that potential through the imposition of formidable restrictions, e.g., climate, shape, size, etc. The lack of a technological ability to exploit existent resources, coupled with a poor agricultural foundation has necessitated a drive for territorial expansion. Vernon Asputurian has noted that

Russia's central geographic location provided immense opportunities for territorial expansion.¹⁶ Between mid-sixteenth century and the end of the seventeenth, Russia is calculated to have conquered territory the size of the Netherlands each year for 150 years.¹⁷ During the period 1939-1946, the Soviet Union annexed an additional 250,000 square miles¹⁸ and became the only great power to emerge from the second World War larger than before. Historically, Russia has demonstrated a persistent tradition of quest for geographic expansion in every conceivable direction: Westward, Southward in the Balkans, and toward the East at the expense of China.

While the significance of geography has been moderated to an extent with technological advancements in transportation, communications, weaponry, etc., its historical and contemporary impact on Russia's weltanschauung lingers. Its foreboding climate and relative agricultural infertility operate to condition what one might describe as a cynical view of a "man versus nature" struggle, bordering on the nihilistic. At the same time, its massive size conditions a contrasting influence - one of systemic centrality. All else is inferior and thus subordinate to Mother Russia.

B. HISTORICAL TRADITION AND NATIONAL CHARACTERISTICS

In 1845, Karl Marx penned the phrase "History is nothing but the activity of man in pursuit of his ends." The history of a particular country exerts an influence on the perceptions and behavior of its contemporary inhabitants. With this in mind, it is of interest to examine certain aspects of the Russian historical tradition in an attempt to identify characteristics and developmental patterns which may function as an influence on current behavior.

Russian history is said to have begun with the formation of the principality of Kiev (Kievsky Rus) by Norsemen under the leadership of Rurik in 850.¹⁹ This political entity lasted almost four centuries until conquered by a Mongol-Tatar force under the leadership of Batu Khan (grandson of Genghis Khan) in 1240. Survivors of this conquest gravitated to Moscow where the populace had learned that survival could best be maintained if the "Golden Horde" was treated with accommodation in lieu of resistance. This situation continued until 1480 when Ivan III, Grand Duke of Moscow, refused to pay tribute to the Mongols. Subsequently, the control of the Golden Horde began to decline and Moscow emerged as the center of Russia.²⁰

Moscow's existence was then challenged by the Poles. To contend with this threat, the Moscow Princes granted fiefs to military officers who thus served as regional commanders and land managers. With the death of Ivan IV (The Terrible) in 1584, a new era known as the "time of trouble" began which involved a variety of class warfare. The Poles then established themselves in power until 1613, when a religious coalition ousted them and appointed a member of the Romanov family as Tzar.²¹ This monarchical family was to continue in power for a period to exceed three hundred years.

Nobles began to demand the return of their serfs who had dispersed during the time of trouble. In response, the Tzar ordered a manhunt which resulted in the return of most of the workers. In 1649, a "register" was established which listed all serfs.²² The institution of serfdom was to continue until 1861.

This brief foray into medieval Russian history is presented to illustrate the emergence, amid conflict, of an imperial/authoritarian tradition.

One noted historian has observed that subsequent to the founding of the "Moscow Monarchy" the Russian state has exercised a "proprietary/patri-monial" control over its territory and its populace. In essence, the government perceives its ownership of the country.²³ The concept of the state, and its elite, as the ultimate authority is a tradition clearly evident in Russian history and current Soviet policy. An interesting and illustrative story is told of the tenth century ruler of Kiev, Prince Vladimir Svystoslav, who, in searching for an instrument of power and discipline to organize and rule his subjects, sought a religious belief to fill the needed void. He selected the East Orthodox religion of Byzantium, organized a priesthood, and on a Sunday morning in 988 mobilized the entire population of Kiev and marched them into the river Dnieper -- from which they emerged baptized Christians. Such was the introduction of the concept of the church as an instrument of state power.²⁴ Russia has heavily inherited the Byzantine tradition of the state representing the highest principle of society.²⁵

A key feature of the Russian tradition which distinguishes it from contemporary Western society is the evolution of state authority. While authoritarian rule has declined in Western society over time, the contrary has occurred in Russia from the 15th century onward. Even now, Soviet Russia lacks any tradition of civil liberty or of rule by law which governs the ruled as well as the rulers.²⁶

The history of Russia is a monument to conflict, invasion, and war. Many historians have observed that Russia served as a buffer to protect Western Europe from invasion, and thereby fostered the progressive development of European civilization at the expense of Russia's. During the period of 1228 to 1462, Russia experienced 160 foreign invasions while

Western Europe was engaged in the Renaissance. During the period of Enlightenment of the 17th and 18th centuries it was involved in ten wars with Sweden and Poland. The 19th century witnessed the Napoleonic Wars (during which Moscow was burned), the Crimean War, and the Russo-Turkish wars. The 20th century brought war with Japan, the first World War, and, most notably, the second World War.²⁷ The casualty statistics of Russia in the 20th century alone are staggering. Since 1914, some 60 million persons are calculated to have been lost to war, (international and civil) famine, and purges. One-third of these occurred as a result of World War II. A comparison may illustrate the magnitude of these losses. Subsequent to 1775, the United States has lost 650,000 to war. This figure is fewer than that experienced by the Soviet Union in the 900 day siege of Leningrad alone.²⁸

The magnitude of this conflict experience has given rise to a pronounced military influence within Russian history and tradition. This has lead to an obsession with military power. If one objectively surveys Russian history, with particular attention to events in the 20th century, one is confronted with the observation that the exercise of military power has been a major factor in its development. It has served to install a communist form of government, (Bolshevik success in the Civil War), defeat a determined and capable enemy (Germany), expand international influence (hegemony in Eastern Europe), and enabled a rise to a position of equality and recognition among superpowers (nuclear parity). One historian has noted that while other tactics have failed to produce desired results, e.g., ideology has lost its influence, the Soviet economic model has failed, etc., the tactic of exerting military power has consistently met with success.²⁹

The influence of this military tradition operates in two discernible fashions. First, as has been noted, it serves to promote external objectives. Second, it functions as an internal element of control to insure maintenance of the Soviet system. In an environment devoid of conflict and tension, the Soviet system would experience difficulty. Maintaining the military in a position of preeminence serves to perpetuate the atmosphere necessary for Soviet continuity. Each of these influences serve to exaggerate the perceived need for military power, and consequently, the levels of military capability will tend to exceed that which is necessary for defense purposes. Solzhenitsyn illustrated this observation in his Letter to the Soviet Leaders:

Military obligations dictate, you say? But in fact we have only one-tenth of the military obligations we pretend to have, or rather that we intensively and assiduously create for ourselves...For peacetime we armed to excess several times over...³⁰ we maintain this army solely out of military and diplomatic vanity.

In any historical analysis, one must ask oneself if any trends relative to perceived objectives emerge from a country's historical experience. In the case of the United States one might identify a certain misguided altruistic desire to foster a world order based on peace and free self-determination.³¹ In the case of Great Britain, one might observe a tendency toward maintenance of a certain status quo which facilitated an increase in self-prosperity. The Russian response to this perceived objective has been labeled by many as domination of the world. One must exercise great caution in accepting any of these generalizations on face value and in viewing a country's behavior solely in terms of means/ends calculations. It is, however, of interest to examine the historical evidence cited as the basis for reaching such conclusions.

The Marquis de Custine, a French observer of Russia in the manner de Tocqueville was of the United States, discerned a driving Russian motive in 1839. "An immense ambition ferments in the hearts of the Russian people. That nation, essentially aggressive...dreams of world domination."³²

Friedrich Engels, a coauthor of the ideology on which Soviet communism is founded, made similar observations. Russia's

ceaseless intervention in Western affairs was to secure it the mastery of Europe. There was no land grab, no outrage, no repression on the part of Czarism which was not carried out under the pretext of enlightenment, of liberalism, of the liberation of nations. (Russia's goal is) the attainment of its own single, never changing, never-lost-sight-of objective: the domination of the world..."³³

Michael Pogodin, a Russian playwright, poetically expressed:

My heart trembles with joy, O Russia, O my Fatherland...you, you are chosen to consummate, to crown the development of humanity, to embody all the various human achievements...in one great synthesis, to reconcile heart with reason, to establish true justice and peace.³⁴

The ultimate validity of these dated observations is indeed questionable. However, when one examines the basic tenets of Soviet ideology a certain continuity of purpose appears to exist. Proclamation of such a destiny may serve a multitude of purposes. Discarding the possibility that it represents a latent aspiration, one must recognize that it functions in a motivational sense to engender a sense of purpose and to bolster the will to contend with an environment frequently harsh and foreboding.

Before leaving the Russian historical tradition, it may be helpful to summarize certain "national characteristics" which emerge from the Russian experience. One author has noted that the "Russian mind" is fascinating due to the "lure of the quaint, the bizarre, the incongruous."³⁵ This characteristic is frequently encountered in Russian literature - Tolstoy wrote of a policeman thrown into a river tied to a bear; Gogol told of a

civil servant who looked in his mirror one morning to discover that his nose had disappeared during the night. In Russian legend, a 16th century Tzar is reputed to have ordered the slaughter of a gift elephant for failure to bow to him. These qualities are also apparent in recorded history - Emperor Nicholas I determined the route of Russia's first major railway between St. Petersburg and Moscow by using a ruler to draw a line between the two cities on a map. The engineers faithfully followed this line, to include detours accidentally caused at points where the Emperor's fingers had protruded.³⁶

Violence, cruelty, and sudden unpredictability are other characteristics which appear to find expression in the Russian experience. Peter the Great condemned a nobleman to be beheaded for embezzlement. The prisoner was led to the chopping block, placed his head upon it, and heard the ax whistle through the air - only to strike the block, not the suddenly pardoned victim. Stalin is reported to have laughed hysterically as one of his police officials described the few minutes preceding the execution of Zinovyev, wherein Zinovyev violated his atheistic Marxism by calling on Jehovah for salvation. Stalin later ordered that the teller of the story also be executed. Both men were Jewish. Soviet POW's released from Finland after the winter war of 1939-1940 were paraded through the streets of Leningrad which had been decorated with banners stating: "The Fatherland Greets its Heroes." The POW's marched straight through the city to the railroad station where they were loaded onto cattle cars for transport to concentration camps. Their crime had been failure to avoid capture.³⁷

Another feature of the Russian tradition is an obsession with prestige as a means of concealing a basic inferiority. Massive efforts have

been undertaken to impress the observer with the greatness of Russia. The classic example is Peter the Great's 1703 declaration that St. Petersburg be built as a model city in the middle of an uninhabited swamp. A most absurdly amusing incident occurred with the issue of a 12 sided phonograph recording of one of Stalin's speeches. The entire last side was devoted to the joyful clapping of the audience. The inauguration of the space era with the October 1957 launching of Sputnik is another monument to Russian prestige.³⁸ Likewise, Khrushchev's boasts of Soviet nuclear capability were designed to impress the world. This preoccupation with prestige appears to be motivated by two factors, each stemming from insecurity. First, it reflects the Soviet perception of a need to illustrate the fact that Soviet Russia is a great and powerful nation. Second, it serves as a tool to compensate the populace for certain basic deficiencies which exist as a result of geopolitical reality.

A final quality which emerges from the Russian experience is xenophobia. This is bred of geographic isolation, invasion, and an innate suspicion and distrust of anything non-slavic.

Russia's historical tradition has endowed the contemporary Soviet state with an authoritarian, militaristic, and self-reliant view of itself and the world in which it is forced to operate. One of the most impressive features of Russian history, especially that of Soviet Russia, is a tremendously high degree of dedication and resolve.

C. POLITICAL PROCESS

The political system existing within a given country is a key indicator of the type of behavior it is likely to display. In analyzing this aspect of a system, one must recognize the parameters within which

political processes operate. One element deals with input stimuli deriving from the external environment. Another concerns inputs originated at the internal domestic level. The political process itself involves the reception of these stimuli, calculation of possible alternative responses, formulation of policy, and implementation in the form of output. The bureaucratic process involved in policy selection is conditioned by numerous influences, to include personal ideosyncracies of the decision makers, bureaucratic interests of responsible officials, organizational role of various common-interest groups, and perceived objectives.³⁹ An additional factor which comes into play in policy selection involves the calculation of a cost/benefit analysis of various alternatives, based on the likely responses of both internal and external actors to a given policy. The perceptions of members of a political system exert a major influence on policy behavior. These perceptions are conditioned by a "world view" which, as indicated above, is determined by various factors including historical experience, geographic reality, political tradition, etc. The primary objective of any political system, to which all others are subordinate, is the continued maintenance of that system in a position of control. A corollary objective is the preservation of the national security.

With this introductory discourse on the nature of politics, it should be of interest to examine a few characteristics of the Soviet system which may distinguish it from others. As has been previously noted, one striking feature of the political system is its authoritarian cast. This type of control is maintained in the hands of the Politburo, a political elite exercising power in the name of the Communist Party. This elite has a vested interest in maintaining its power position.⁴⁰ Though changes

in the composition of this elite frequently occur in an unpredictable manner, these changes are largely the result of internal initiative, i.e., not in response to external pressures.

Michael Tatu notes that an important factor underlying the Soviet decision making process within the ruling elite is its monolithism.⁴¹ While one can readily recognize a Soviet elitest desire to project its image as that of being a unitary body devoid of disagreement in pursuit of "scientifically objective" goals for the benefit of the state and mankind; beneath this facade exists a degree of bureaucratic "tugging and hauling" common to any collective political system.⁴² The distinguishing feature of the Soviet system in this regard, however, is that once a political policy has been adopted within the bureaucratic arena, a curious unity termed "democratic centralism" exerts its influence to implement that policy with an apparent monolithic effect.

Another significant aspect of the Soviet political process is its ability to display a concentration of means. Vesting all elements of control within an elite party grouping allows for a degree of coordination of policy and power unattainable in a more decentralized political system.⁴³ This concentration and coordination of means predisposes the Soviet political model to cope most effectively with situations developed on the basis of its own initiative, and less efficiently on those resulting from the initiative of others.⁴⁴ In other words, this political system is more effective in an offensive mode than when required to react defensively.

An interesting feature of Soviet politics in the realm of foreign policy is its apparent teleological nature. This derives in part from Soviet ideology and Russian history.⁴⁵ The political means of calculating the position of the Soviet Union vis-a-vis movement toward its perceived

objectives is accomplished in an assessment of the "correlation of world forces." There are four major aspects of this correlation. The first involves economic forces and concerns a variety of quantitative calculations of productivity, GNP, growth patterns, level of technological development, etc. The second relates to military capability in terms of quantity and quality of weapons systems and the viability of doctrinal thought. The third factor addresses the political vitality of the state, its level of popular support, and its ability to respond to situations decisively. The final element involves the status of international movements.⁴⁶

The Soviet political elite has discerned three key shifts in the correlation of forces. The first occurred with the emergence of a communist state in 1917. The second was marked by the defeat of Germany in 1945. The most recent shift began in 1969 with attainment of strategic parity.⁴⁷ Additionally, the Soviets maintain that the correlation is continuing to shift in their favor. They are firm in the conviction that this movement in the correlation of forces brought detente, not a cooperative spirit on the part of the U.S. This belief is significant because in one respect, it illustrates the Soviet perception of the political utility of military power in a nuclear age. The shifting correlation of forces is understood to have compelled the U.S. to adopt a more accommodating posture toward the U.S.S.R.⁴⁸ This view of international politics lends a certain continuity of purpose to the Soviet political system and serves to legitimize its foreign policy both at home and abroad.

Another advantage to the centralized political system of the Soviet Union is its allowance for a high degree of flexibility in policy formulation. Numerous scholars have identified opportunism as a recurring

feature of Soviet foreign policy. The flexibility inherent in a centralized decision making apparatus endows an ability to exploit various opportunities, as they arise, in pursuit of desired national objectives.

Clearly the Soviet Union has demonstrated a continuing increase in the level of sophistication utilized in its political view of the international arena. The existence of the Institute of World Economy and International Relations and the Institute of the USA and Canada, quasi "think tanks," somewhat akin to the RAND corporation or the Brookings Institute, illustrates the development of an enlightened analytical approach to the understanding of world politics, and specifically the competitive relationship existing between the U.S. and the U.S.S.R.⁴⁹

In summary, the Soviet political system can be defined as a centralized authoritarian bureaucracy which appears to be highly responsive in foreign policy matters, perhaps at the expense of its ability to fully satisfy domestic needs. Political priorities involve the perpetuation of the ruling elite, maintenance of the Soviet state, and expansion of its global influence.

D. ECONOMIC POLICIES

Economic factors reveal several insights into Soviet policy. First, the nature of an economic system indicates the priorities which have been established in terms of allocation of resources. Second, prosperity and growth are important measures of the capability which can be applied in pursuit of a state's national interest.

Central direction and control are the most striking features of the Soviet economic model. This allows for the establishment of economic priorities by the ruling elite which are to be implemented through command

channels. Detailed economic planning is one manifestation of this centrality. This is accomplished through five year plans which attempt to forecast the growth pattern for each sector of the economy.

Another significant aspect of the Soviet Union is the subordination of light industry and consumer needs to heavy industry and defense. This is made possible by the centrality inherent in the economic system. William Odom has observed that "it is not a question, in the Soviet view, of guns and butter - what mix for social satisfaction? It is a question of how much butter must be produced in order to obtain the highest rate of military growth."⁵⁰

The gross national product (GNP) of the Soviet Union is approximately one-half that of the U.S., yet the percentage of GNP allocated to heavy industry and defense spending reflects a disproportionate amount vis-a-vis U.S. allocation.⁵¹ During the period 1970-1975, the U.S.S.R. averaged 24.5% of its GNP for fixed capital investment. By comparison, the U.S. allocated 14%. In 1974, the per capita consumption of consumer services in the Soviet Union was only 35% of that of the U.S.⁵²

The CIA estimated in June 1978 that during the period 1967-1977 Soviet defense spending accounted for 11% to 13% of their GNP. The U.S. allocation in 1977 represented 5.1% of GNP. The Soviet Union is projected to increase its defense spending in the early 1980's at a growth rate of 4% to 5% per year.⁵³ The U.S. Arms Control and Disarmament Agency has calculated that Soviet military expenditures have risen from \$79.2 billion in 1967 to \$121 billion in 1976, while U.S. expenditures have declined from \$120 billion to \$86.7 billion during the same period.⁵⁴ Certain hidden features within the economic systems of the two countries serve to widen the margin of defense spending. For example, while 56%

of the U.S. defense budget goes toward pay and allowances, only 16% of Soviet spending is consumed in a like manner.⁵⁵

The military/industrial orientation of the Soviet economy is made at some sacrifice, most notably in terms of economic growth. During the period of the ninth economic plan (1971-1975) growth slowed markedly in most sectors due in part to a decline in the labor force and poor agricultural production. During this same period, however, growth in heavy industry continued to display a high rate of expansion.⁵⁶ This decline presents serious economic problems for the Soviet Union. While most nations pursue economic growth for domestic prosperity and to support foreign policy programs, the U.S.S.R. is subject to an additional motive - a historic drive to "overtake and surpass" the West.⁵⁷

There appear to be two major options which could provide for increased growth. The first is serious economic reform with adoption of some type of market system. While sufficient historical precedent exists for a reform of this nature (the New Economic Policy of the 1920's), the prospect of its adoption does not seem likely. Such reform, including an increase in managerial independence, consumer control, etc., would jeopardize the position of the Soviet government.⁵⁸ Additionally, it would have a negative influence on continued growth of the defense effort. The second alternative to provide growth without fundamental reform and alteration of existent economic priorities, is to import Western technology to raise labor productivity.⁵⁹ There appears to be sufficient evidence to suggest that the Soviet Union has opted for the latter alternative.

In summary, the economy of the Soviet Union, like its political structure, is dominated by centralized direction and control. This permits allocation of economic resources to areas perceived by the leadership to

warrant priority. It is clear that heavy industry, with its military implications, has received the focus of Soviet economic efforts. This penchant for placing military above social needs may be viewed as a barometer of domestic and foreign policy. A reversal in these priorities would signal a fundamental change in Soviet policy orientation - a change much more reliable than that heralded with detente rhetoric.⁶⁰

This examination of four elements of the Soviet experience has been conducted in an attempt to ascertain the type of influence they may exert on Soviet behavior. The degree of impact of each of these cannot be measured, but the realization that they do in fact condition behavior cannot be dismissed.

Geographically, the experience has been harsh and severe. Historically, the tradition has been violent and at times primitive. The political process can be characterized as authoritarian. The economic system reflects a low priority for basic human prosperity. Yet despite what appears to be a rather foreboding picture painted in these terms, Soviet Russia has displayed a truly impressive determination in its rise to superpower stature.

The central question which exists today is to what degree this position of power will influence future Soviet behavior. Numerous observers have hypothesized two alternatives.⁶¹ On the one hand, increased power and prestige may yield a more assertive and arrogant foreign policy. On the other, acquisition of this new stature may result in reduced aggressiveness.

The first of these alternatives tends to project future Soviet behavior as being based on the continued operation of the variables discussed herein, in an environment in which the U.S.S.R. has acquired a

new and powerful legitimacy. It thus, ascribes a quasi-permanence to the influence of the Soviet experience. The second alternative downplays the significance of this experience, and tends to support an evolutionary interpretation of behavior. That is to say that behavior is more influenced by existing conditions than by experience. These two alternatives are key issues which can be viewed in another, albeit philosophical, context. Both relate to one's interpretation of the essential nature of man and the state. The first presupposes a certain deterministic influence in that the state is endowed with characteristics which unavoidably condition its behavior. The second and more sanguine view holds that a political entity can escape the influence of certain characteristics of its experience and develop along lines which transcend parochial interests toward a more utopian society. While the appeal of the latter alternative has lured many of an idealistic persuasion, the realities of history tend to refute the possibility. The Russian experience will continue to exert a significant influence on Soviet behavior.

The policy implications of this observation appear clear. First, understand the nature of Soviet Russia - its internal determinants and capabilities. Second, be alert to the expression of Soviet behavior within the context of the influences which condition it. Third, react to threatening foreign policy initiatives from a position of power and unemotional determination. And finally, maintain a consistency of response to further enhance the credibility of resolution.

III. STRATEGIC FORCES OF THE SOVIET UNION

One means of assessing the nature and credibility of espoused strategic policy is to examine the means available with which it might be implemented. For example, if one were to proclaim a doctrine of pacifism yet amass a significant arsenal of weapons, the credibility of the espoused pacifism would be seriously questioned. Conversely, if one announced a determination to meet the ultimate crisis situation with overwhelming military might while lacking the necessary military capability, one's credibility would be equally doubtful.

An analysis of Soviet strategic nuclear forces should yield two significant insights. The first relates to the ability of the strategic systems of the Soviet Union to provide a viable means of supporting national security objectives. The second, and perhaps more important insight, concerns the identification of certain latent features within the strategic forces, and trends in their evolutionary development, which tend to highlight a proclivity for a given strategic posture.

This analysis of Soviet strategic forces will consist of a brief examination of the calculus of nuclear power, an assessment of the various offensive and defensive strategic systems available to the Soviet Union and a look at the trends which have emerged in the development of Soviet nuclear forces. A brief comparison of the U.S. and U.S.S.R. strategic arsenals will be conducted to place this analysis in perspective.

A. CALCULUS OF NUCLEAR POWER

There are three basic military effects of a nuclear explosion: blast, thermal radiation, and nuclear radiation. The intensity of each

of these is determined by the yield of the weapon, i.e., power measured as the equivalent of thousands of tons (kilotons or KT) or millions of tons (megatons or MT) of TNT, and by the method of employment, i.e., air burst, surface burst, or subsurface burst. The utility of each of these effects is largely dependent upon the type of target. In the field of nuclear strategy two general categories of targets have been established. The first, countervalue targets, identifies relatively "soft" targets on which the opponent places a high value. They include population centers, industrial areas, etc. The second, counterforce targets, concern primarily military targets of varying degrees of "hardness", to include command and control facilities, ICBM silos, airfields, etc.⁶² Of the basic effects, blast is considered most important when attacking a hardened target. Under appropriate circumstances, any or all of these effects can be important when dealing with softer targets.

In addition to yield and method of employment, accuracy plays a decisive role in the level of damage attained. Accuracy is measured in terms of Circular Error Probable (CEP), which defines the radius of a circle centered on a target within which the weapon has a 50% chance of impacting. For example, a missile warhead with a CEP of .5 nautical miles would have a 50% chance of landing within a one nautical mile diameter circle centered on the target. As accuracy increases, the CEP decreases.

The destructive power of a nuclear weapon may be calculated by two different methods, dependent upon the nature of the target. The first, termed Equivalent Megatonnage (EMT) concerns damage against soft targets and is a function of the size of yield alone.⁶³ The second measure of destruction, termed Counter Military Potential (CMP), is utilized in hard

target calculations and is a function of both yield and accuracy.⁶⁴ A comparison between these two measures indicates the criticality of accuracy as a multiplier of lethality when dealing with hard targets. Lethality is directly proportional to yield and inversely proportional to CEP. An eight-fold increase in yield will result in four times more useable destructive power. If, however, accuracy is improved by reducing the CEP by a factor of eight, lethality would increase 64 times. If both yield and accuracy were improved by factors of eight, the resultant hard target destructive power would be 256 times greater.⁶⁵

Throw weight represents another measurement of strategic force capability. This is defined as the weight of the re-entry vehicle (warhead component) which a given missile is capable of projecting. Throw weight determines the size, in terms of yield, and the composition, in terms of numbers, of re-entry vehicles and their associated warheads. For example, the Soviet SS-18 ICBM is estimated to have a throw weight of 16,000 to 20,000 pounds. This endows it with the capability of projecting one large warhead in the range of 18 to 25 MT, or numerous smaller separate warheads, each with lower yields.⁶⁶

Three specific categories of warheads have been developed for missiles. The first is the single re-entry vehicle or single warhead. The second category consists of multiple re-entry vehicles (MRV's) which are several independent warheads with a limited separation capability. This type of weapon is somewhat analogous to a shotgun shell in that the separate warheads are released in a pattern with no independent guidance. The final, and most sophisticated, type of warhead is the Multiple Independently Targetable Re-entry vehicle (MIRV) which consists of several warheads packaged to travel to the vicinity of the target area. These are released

separately at various stages of the missile's incoming trajectory, and independently guided to assigned targets.

The potential for a systems failure in a nuclear weapon exists, as it does in any technological process. Thus, reliability ratings have been assigned various weapons systems. These ratings are the product of the reliability of the various sub-systems and phases of employment. For example an ICBM with a .95 probability of successful launch, a .95 probability of booster separation, a .95 probability of successful re-entry, and a .95 probability of detonation on target would be assigned an overall reliability of $.95^4$ or .815.⁶⁷ An additional complicating factor in calculating the reliability and effectiveness of a nuclear attack is the problem of "fratricide." This phenomenon concerns the detrimental effects of the detonation of one nuclear device on additional subsequent weapons entering the same general vicinity. For example, if a specific target was calculated to require two or more warheads to achieve the desired level of damage, the effects of the detonation of the first weapon, in terms of rising debris and electromagnetic disturbance, could cause subsequent weapons to miss the target, to explode at a non-optimal height, or not to explode at all.

Thus, when evaluating the capabilities of various strategic nuclear weapons systems one must go beyond a mere arithmetic calculation of the number of weapons which compose a strategic arsenal. Of significance are the type of systems, their size, yield, accuracy, reliability, and the nature of the target against which they are employed.

B. THE STRATEGIC ARSENAL

Strategic nuclear forces are defined as those having the capability of delivering nuclear weapons on targets of either a countervalue or counterforce nature. Additionally, they include forces and systems designed to defend against such attacks. In the age of superpowers the term "strategic nuclear" connotes those systems capable of employment in an intercontinental exchange against an opponent's homeland. They consists of Intercontinental Ballistic Missiles (ICBM), Submarine Launched Ballistic Missiles (SLBM), long-range bombers, and defensive systems capable of countering these weapons.

1. Intercontinental Ballistic Missiles

Missiles launched from land which depart the earth's atmosphere prior to re-entry and have a range in excess of 4000 miles are classified as ICBM's. Like any system, they have certain positive and negative features. Due to the fact that they are fired from fixed, precisely surveyed positions, they are able to achieve a relatively high degree of accuracy (dependent upon guidance technology) when compared to other weapons systems. They also offer the advantage of launching larger yield weapons and/or multiple warheads. On the negative side of the ledger, ICBM's are the most vulnerable of strategic offensive systems. Without sufficient defenses, the primary means of protection is that which is obtained by burying them in hardened silos beneath the earth's surface.⁶⁸ New Soviet ICBM's are being deployed in hardened silos capable of withstanding 2000 psi.⁶⁹ There are, however, finite limits on the structural hardness which can be achieved. The maximum strength of reinforced concrete is calculated to be 3000 psi, and even silos constructed to this level of hardness can be defeated by increases in missile accuracy.⁷⁰

The Soviets have adopted a launch technique for two of their fourth generation ICBM's which endows two significant advantages. This procedure, known as "cold launch", involves propelling the missile out of the silo with gas generators prior to ignition of the booster motors. As a result, the silos are not damaged by ignition of the missile's propellant system, and can thus be reloaded and reused. Additionally, this technique enables the launching of a heavier missile, with greater throw weight, from a given silo.⁷¹

The Soviet Union has placed a heavy reliance on its ICBM force as the mainstay of its strategic nuclear arsenal. It has also placed a higher premium on larger strategic missiles in terms of throw weight and yield. This contrasts with the U.S. approach which involved increasing accuracy at the expense of raw power.⁷² Initially, the Soviet penchant for massive size and power in the design of their ICBM's may have been motivated out of technological necessity. Lacking the sophisticated guidance systems essential for accurate warhead targeting, they compensated with the less precise delivery of increased yield. A crude analogy follows: If one is unable to demonstrate the accuracy necessary to kill the target with a rifle, use of a cannon should compensate. Although less accurate, the increase in destructive power would produce the desired effect.

This tendency toward massive power continues to pay benefits. Now that the Soviet Union has accomplished improvements in both guidance accuracy and MIRV technology, it is able to incorporate these developments into existing larger missile systems which have been legitimized through the strategic balance negotiated in SALT I and SALT II.⁷³

The size of yield of the Soviet strategic weapons systems is another striking feature of the nuclear arsenal. Twenty percent of all

Soviet warheads have a yield in the range of five to 25 megatons.⁷⁴ The magnitude of this power may be placed into proper perspective when one recalls that a 20 kiloton weapon was detonated on Hiroshima. Figure one illustrates the composition of the Soviet ICBM arsenal.

The SS-9 ICBM carries the NATO code name "SCARP" and was first deployed in 1965. Four modifications of the missile have been identified. The SS-9 Mods One and Two consist of three-stage liquid propellant weapons capable of delivering warheads in the range of 18 to 25 megatons. Originally 320 SS-9 silos were constructed, but beginning in 1973 a portion of these were converted to accommodate the later generation SS-18. An additional improvement in the SS-9/SS-18 silo system involves increased structural hardness. The Mod Three version of the SS-9 is believed to be capable of employment in a depressed trajectory mode or as a Fractional Orbital Bombardment System (FOBS). Both these techniques serve to reduce the missile's vulnerability to early detection and anti-ballistic missile defense. The depressed trajectory feature involves utilization of a flatter trajectory to keep the missile below the horizon at which it can be acquired by radar. The FOBS mode of employment consists of placing the weapon in some form of fractional orbit and then, on command, causing the warhead to execute a re-entry. Although this feature reduces accuracy, it also reduces the warning time available to determine the location of the intended target. While the Mod Three has not been tested since 1971, and U.S. intelligence does not believe it is currently deployed, there is little conclusive evidence to indicate that these techniques have been completely discarded.⁷⁵ The SS-9 Mod Four is the missile with which the Soviets began to enter their stage of MRV and MIRV technology. First tests of this system with multiple warheads were detected in early 1969 and

DESIGNATION	YEAR DEPLOYED	TYPE OF WARHEAD	YIELD	THROW WEIGHT (lbs)	RANGE (miles)	ACCURACY (CEP in nautical miles)	RELIABILITY	NUMBER DEPLOYED (July 1978)
SS-9	1965	Single or 3 MRV's	18-25 MT or 3 x 5 MT MRV's	12,000 - 15,000	7,500	.7	?	190
SS-11	1966	Single or 3 MRV's	2 MT or 3 x 300 KT MRV's	1,500 - 2,000	6,500	.5	.70	780
SS-13	1968	Single	1 MT	1,000	5,000	.7	?	60
SS-17	1975	Single or 4 MIRV's	5 MT or 4 x 900 KT	6,000	6,500	.3	.75	60
SS-18	1975	Single or 8 MIRV's	18-25 MT or 8 x 2 MT MIRV's	16,000 - 20,000	6,300	.1	.75	110
SS-19	1975	Single or 6 MIRV's	5 MT or 6 x 1 - 2 MT MIRV's	7,000	7,000	.25	.75	200 = = 1400

FIGURE 1: ICBM Forces of the Soviet Union

Author's estimates derived from: The Military Balance 1978 - 1979, (London: International Institute for Strategic Studies, 1978); John M. Collins, Imbalance of Power, (San Rafael CA: Presidio Press, 1978); Counterforce Issues for US Strategic Nuclear Forces, (Washington, D.C.: US Congressional Budget Office, 1978).

continued until November 1970 at which time they were suspended. Some analysts concluded that failure to resume testing in 1971 and 1972 indicated either an abandonment of the MIRV approach or an inability to solve the problems inherent in MIRV technology. By January 1973, however, new tests of the Mod Four were detected. Although the deployment level of the Mod Four is uncertain, it is believed to be capable of delivering three MRV warheads with a yield of five megatons each.⁷⁶

The SS-11 ICBM ("SEGO") is a two stage missile which utilizes a storable liquid propellant. This system is the mainstay of the present ICBM force and accounts for over 50% of those deployed. Three versions of this system have been identified. Mods One and Two each carry a single warhead in the range of two megatons. The Mod Two version, however, is equipped with penetration aids (penaids) which endow a capability of avoiding ballistic missile defenses, and thus reduces the weapon's inflight vulnerability. The SS-11 Mod Three is a similar system; however, it is equipped with three MRV's each having a yield in the kiloton range. Some SS-11 silos are undergoing conversion to accommodate later generation SS-17 and SS-19 systems.⁷⁷

The SS-13, nicknamed "SAVAGE", is a three stage solid propellant system with a one megaton warhead, and is similar to the U.S. Minuteman I ICBM. This missile is believed capable of deployment in a mobile configuration.⁷⁸

The SSX-16 ICBM is in the final stages of development and is believed to be the successor to the current SS-13. This system is estimated to be capable of projecting either a single warhead with a yield in excess of one megaton or several MIRV's. One interesting aspect of this three stage ICBM is its apparent relationship with the SSX-20

intermediate range ballistic missile (IRBM). The SSX-20 is projected to be a mobile system somewhat identical to the SSX-16, but lacking one of its three stages. This development has raised the concern among Western analysts that the mere addition of a third stage could upgrade this IRBM to an ICBM on short notice.⁷⁹

The SS-17 ICBM, initially deployed in 1975, is one of the fourth generation Soviet missile systems, and is believed to be replacing the SS-11. This system represents a significant advancement in MIRV technology, increased throw-weight and accuracy, and a reduction in vulnerability. The SS-17 is capable of employing a single warhead of five megatons or four MIRV's in the kiloton range. An additional feature of the SS-17 is that it employs the cold-launch technique.⁸⁰

The SS-18 ICBM is the largest and most threatening member of the latest generation of Soviet missiles. This is a two-stage liquid fueled system which also utilizes the cold-launch technique. Like the SS-17, it represents major improvements in ICBM technology. Three versions of the SS-18 are estimated to be deployed. Mod One employs a single warhead in the neighborhood of 25 megatons. Some estimates have increased this figure to 50 megatons. Such a warhead suggests that, despite advancements in MIRV technology and accuracy, the Soviets still perceive a need for a massive single warhead. The Mod Two version utilizes eight MIRV's with a yield of two megatons each. Some estimates of this version have increased the number of MIRV's to 14. The Mod Three model is a lighter and more accurate version of the Mod One.⁸¹ In October 1977, tests of a Mod Four warhead were detected wherein the SS-18 demonstrated an accuracy of .15 nautical miles.⁸² Some observers have credited the SS-18 with an amazing accuracy of .1 nautical miles.⁸³

The final ICBM currently deployed in the Soviet arsenal is the SS-19, a two-stage liquid fueled missile.⁸⁴ This weapon exists in two versions. The Mod One employs six MIRV's, each with a one to two megaton yield. The Mod Two consists of a single five megaton warhead.⁸⁵ Again, this member of the fourth generation incorporates the technological advances which the Soviets have been able to accomplish in recent years.

This then constitutes the systems currently employed in the Soviet ICBM arsenal. The weapons range from the high yield and relatively inaccurate SS-9, to the most modern and sophisticated fourth generation systems which rival or surpass the once existent technological supremacy of the U.S.⁸⁶ The July 1978 deployment level of Soviet ICBM's was 1400. This contrasts with 1054 U.S. ICBM's. Deliverable Soviet warheads are estimated to number 3,350, as compared to 2,154 for the U.S. The Soviet equivalent megatonnage is calculated at 3,214 EMT (U.S.: 1313 EMT), and throw weight at 8.4 million pounds (U.S.: 2.2 million).⁸⁷ The profile of the Soviet ICBM arsenal, however, is not to be fixed at this level or to be limited to these capabilities. While SALT II restricts both sides to deployment of only one new ICBM, research and development was reportedly well underway on four new systems which were to constitute the fifth generation of ICBM's.⁸⁸

Another feature of the Soviet arsenal, sometimes overlooked, concerns ballistic missiles incapable of meeting the arbitrary range designation of an ICBM. Under provisions of the SALT negotiations, medium range ballistic missiles (MRBM) and intermediate range ballistic missiles (IRBM) are excluded from limitation. The Soviet Union has categorically refused to subject these systems to the prospect of negotiation, and thus insisted that the term "strategic" in the context of SALT, define only

those systems which are capable of attacking the opponent's homeland.⁸⁹ Nevertheless, there are at least three formidable weapons operational which should be considered in any assessment of Soviet "strategic" weapons systems. These forces are targeted against Western Europe and China, which in themselves pose a limited strategic threat to the Soviet Union.⁹⁰

The SS-4 MRBM, which gained a certain degree of notoriety during the Cuban Missile Crisis, delivers a one megaton warhead to a range in excess of 1,000 miles.⁹¹ Approximately 500 of these are estimated to be deployed, primarily targeted against China. The SS-5 IRBM is also capable of delivering a one megaton weapon, but with a range in the neighborhood of 2100 miles. Estimates peg deployment of this system at 100 missiles targeted at Western Europe. The SS-14 IRBM is similar to the previous missile, but has a range of 2400 miles and, like the SSX-20 noted above, is deployed in a mobile mode. This feature complicates accurate estimates of the numbers of these systems deployed.⁹²

2. Submarine Launched Ballistic Missiles

The Submarine Launched Ballistic Missile force of the Soviet Union constitutes the second largest element of the strategic nuclear arsenal. Of all strategic forces, the SLBM is the least vulnerable to compromise. This advantage is the result of concealment and mobility feature inherent in the submarine. Capable of operating for extended periods, undetected, and over extreme ranges, the portion of the submarine force at sea represents the strategic weapon most impervious to counterforce targeting. Due to the fact that SLBM's can be launched from positions of relative close proximity to the target, flight time, which equates to warning time, can be significantly reduced. Additionally,

deployment of long range SLBM's in submarines offers the increased advantage of operating at greater distances from the target which thus increases the area to which the opponent must apply antisubmarine warfare (ASW) coverage. The SLBM force is, however, much less accurate than the ICBM and currently is not well suited to employment in a counterforce role targeted against ICBM's.⁹³

Soviet attempts at development of a submarine launched ballistic missile are said to date from the early post-war era when they experimented with the launching of German V2 rockets from capsules towed by submarines.⁹⁴ Subsequent efforts continued at a fairly slow pace. By 1970, two-thirds of the Soviet SLBM force consisted of outdated submarines armed with three relatively short range missiles. Only 50% of the submarines were nuclear powered. Since 1970, however, major improvements in the submarines and the missiles they carry have been accomplished at a rapid pace.⁹⁵ In 1970, Soviet SLBM's numbered 304; by 1978, this number approached 1,000.⁹⁶ Figure two illustrates the composition of the Soviet SLBM force.

The Soviets currently utilize four basic types of fleet ballistic missile submarines (SSBN). The first, and oldest, is the "GOLF" class which is the first submarine specifically designed to carry SLBM's. Initially deployed in 1960, approximately 20 of these diesel powered boats are still operational. Each are equipped with three launchers which fire the SSN-4 or SSN-5 missiles. The SSN-4 SLBM, code named "SARK" is a two stage solid propellant missile designed for surface launch. The warhead has a range of approximately 350 miles and is capable of a yield in the one to two megaton category. The SSN-5, dubbed "SERB", is considered

DESIGNATION	YEAR DEPLOYED	TYPE OF WARHEAD	YIELD	THROW WEIGHT (lbs)	RANGE (miles)	ACCURACY (CEP in nautical miles)	RELIABILITY	NUMBER DEPLOYED (July 1978)
SSN-4	1961	Single	1 - 2 MT	?	350	2.0	?	27
SSN-5	1964	Single	1 - 2 MT	?	750	2.0	?	54
SSN-6	1969	Single or 3 MIRV's	1 - 2 MT or 3 x ? KT MRV's	1,500	2,000	1.5	.70	528
SSN-8	1972	Single	1 - 2 MT	1,500	4,800	.8	.70	370
SSNX-17	1977	Single	? MT	3,000	3,000	?	?	16
SSN-18	1978	3 MIRV's	3 x 1 - 2 MT	5,000	5,000	?	?	<u>?</u> 995

FIGURE 2: SLBM Forces of the Soviet Union

Author's estimates derived from: The Military Balance 1978 - 1979, (London: International Institute for Strategic Studies, 1978); John M. Collins, Imbalance of Power, (San Rafael, CA: Presidio Press, 1978); Counterforce Issues for US Strategic Nuclear Forces, (Washington, D.C.: US Congressional Budget Office, 1978).

the second generation Soviet SLBM, and is similar to the SSN-4, but with an increased range of approximately 750 miles.⁹⁷

The "HOTEL" class, deployed in 1964, is the first Soviet submarine to use nuclear propulsion. Like the Golf class, these are equipped with three launchers capable of firing the SSN-5 SLBM. Approximately seven of these boats are operational.⁹⁸

The "Yankee" class represents the bulk of Soviet ballistic missile submarines. First deployed in 1968, 34 of these systems are now believed operational. Each carries 16 launchers capable of firing the SSN-6 ("SAWFLY") SLBM. Analysts have identified three versions of the SSN-6. The Mod One is a single warhead system with a yield in the one to two megaton category. The Mod Two version is similar, but with an increased range. U.S. analysts have noted that the Mod Two is capable of reaching any U.S. target from the 600 foot depth contour of the coast of the U.S. The Mod Three version of the SSN-6 employs three MRV's each with a yield in the kiloton range. The relative accuracy and yield of each of these models has led Western analysts to conclude that the SSN-6 was designed for use against soft targets only.⁹⁹

The newest generation of Soviet submarines, the "DELTA" class, was first detected in 1974. Three versions of these boats have been identified. While all utilize the SSN-8 SLBM, they differ in the number of launchers carried. The Delta One has 12 tubes, Delta Two has 16 tubes, and the Delta Three, spotted in mid-1977, has 20. The SSN-8 missile is capable of projecting a one to two megaton warhead a distance of some 4,800 miles. Additional improvements include more sophisticated guidance technology and greater accuracy.¹⁰⁰ Official spokesmen have labeled this

weapon system as the most threatening SLBM in the Soviet arsenal. Its capabilities enable the Soviets to attack most U.S. targets from their home ports.¹⁰¹

Two newer SLBM's have been identified in the early stages of deployment. The SSNX-17 is a single warhead vehicle, with a megatonnage yield, and is capable of a 3,000 mile range. This solid fuel missile is intended as the replacement for the SSN-6. One Yankee class boat is outfitted with this SLBM. The SSN-18 is the solid fuel successor for the SSN-8. It is equipped with three MIRV's, each in the one to two megaton range, and is capable of reaching distances on the order of 5,000 miles.¹⁰² The Soviets are also upgrading the quality of their submarine force. A new class of submarine is under construction. Identified as the "Typhoon" class, these boats are believed to be similar to the U.S. Trident submarine, and are expected to accommodate larger and more numerous missiles.¹⁰³

Although the Soviet ballistic missile submarine fleet presents a formidable strategic force, it has been evaluated as inferior to the U.S. fleet of comparable weapons in terms of missile accuracy, number of warheads, and vulnerability to ASW techniques. In numbers of submarines and in size of yield of missiles, however, the Soviet force enjoys a clear advantage.¹⁰⁴

One interesting and often overlooked aspect of the Soviet SLBM force concerns its relatively low alert rate. Official estimates indicate only approximately 15% of the Soviet SSBN fleet is deployed away from port at any given time. This compares with roughly 55% for the U.S. There appear to be two possible reasons for this low alert policy. The first involves overhaul efficiency. The Soviet Union is estimated to be capable of overhauling a nuclear submarine in 30 to 36 months. The resulting high

shipyard workload reduces the number of boats capable of distant deployment. The second explanation of this low alert rate derives from the nature of Soviet strategic doctrine. A lower deployment rate of SLBM forces suggests a strategic posture which places little value on a second-strike retaliation.¹⁰⁵ Whether accomplished by design or by maintenance necessity, this feature of SLBM employment indicates Soviet perception of a relatively low risk of a surprise first strike launched by the U.S. At the same time, this alert pattern may represent a key indicator of Soviet military intentions. If the level of SSBN's placed on alert status increases drastically (during a crisis situation for example), the nature of Soviet intentions may be more clearly discernable.

On balance, the Soviet SLBM force represents another massive nuclear arsenal which provides a certain degree of flexibility in selection of strategic options. Given the inherent protective features of the submarine force, and considering the fact that SLBM accuracy is best suited for countervalue employment, this element of Soviet strategic nuclear weapons permits them to exert a menacing threat to an opponent's homeland. In fact, one advantage of this force appears to be its potential for holding the adversary's population hostage.

3. Strategic Bombers

Long range heavy bomber aircraft offer additional means of delivery of strategic nuclear weapons. This method of employment has two significant advantages. First, heavy bombers are capable of delivering the largest nuclear payload of available strategic systems. Second, the operational flexibility of this system is perceived, largely in the West, to enable projection of an increased threat short of attack; this being obtained by launching strategic bombers but withholding the command to

penetrate enemy airspace and deliver weapons. There are, however, two compensating disadvantages to a strategic bomber force, both of which relate to vulnerability. Initially, heavy bombers not on alert present inviting counterforce targets which lack structural hardness, and are therefore vulnerable to less accurate strategic weapons. The second disadvantage concerns the aircraft's ability to successfully penetrate the target area and deliver its weapons. Employment of sophisticated air defense systems serve to degrade the aircraft's survivability.

Prior to the advent of the ICBM era, the Soviet Union placed a heavy reliance on strategic aircraft. The number of heavy bombers in the Soviet arsenal reached a high point of 210 in 1966, and has subsequently declined to the current level of 135.¹⁰⁶ Composition of the Soviet bomber force is illustrated in Figure Three.

The TU-95 Bear was flight tested in 1954 and has subsequently been deployed in six versions, all of which continue to be operational. The MYA-4 Bison is the other heavy bomber in the Soviet inventory.¹⁰⁷ Both have been estimated to carry one large gravity activated nuclear weapon as the basic load. Additionally, the Bear can carry the AS-3 "Kangaroo" air to surface missile (ASM) which can be fired 400 miles from its target and produces a yield of one megaton.¹⁰⁸

The newest Soviet bomber is the Backfire, initially deployed in 1974. This sophisticated "medium" bomber is capable of carrying any of the free fall munitions in the Soviet arsenal, and any of the strategic ASM's currently available. Analysts have indicated that decoy missiles are being developed for the aircraft to assist its ability to penetrate sophisticated defenses.¹⁰⁹ Deployment of the Backfire has caused significant controversy in the SALT negotiations over whether it should be

DESIGNATION	YEAR DEPLOYED	BOMB LOAD (lbs)	UNREFUELED COMBAT RADIUS (miles)	MAX SPEED (mach)	PROPULSION	NUMBER DEPLOYED (July 1978)
Bear (Tu-95)	1956	40,000	3,900	.78	Piston	100
Bison (Mya-4)	1956	20,000	3,250	.87	Jet	35
Backfire (Tu-26)	1974	20,000	3,570	2.5	Jet	80
						215

FIGURE 3: Strategic Bomber Forces of the Soviet Union

Sources: The Military Balance 1978-1979, (London: International Institute for Strategic Studies, 1978); John M. Collins, Imbalance of Power, (San Rafael CA: Presidio Press, 1978); John Taylor, ed., Jane's All the World's Aircraft 1978-1979, (New York: Franklin Watts, Inc., 1978).

classified as a strategic weapons system, and therefore be subject to an agreement, or as a medium bomber not subject to limitation. Examination of its performance characteristics clearly suggests a strategic capability. The 1978-1979 edition of Jane's reports that the original design parameters established for the Backfire included a speed of Mach 2.5 and an unrefueled range of 5,500 to 6,000 miles. The initial version, designated Backfire-A was unable to attain the desired range. However, the redesigned Backfire-B is capable of performing in a strategic capacity with an increased unrefueled combat range of 7,140 miles.¹¹⁰ This exceeds the capability of the U.S. B-52G.¹¹¹ The Backfire is equipped for inflight refueling and has been observed to have remained airborne for 10 hours with one refueling.¹¹² Thus, range limitations do not constrain its ability to strike strategic targets. This sophisticated aircraft is being produced at a rate of 2.5 per month.¹¹³ By 1978, 80 Backfire-B's were believed operational. The projected total deployment force of this aircraft is estimated to be in the range of 250 to 400.¹¹⁴ The final element of the bomber force consists of approximately 80 air refueling tankers.¹¹⁵

The Soviet strategic bomber force appears to be undergoing a transition designed to upgrade its capability. A new bomber based on the Tu-144 supersonic transport is being flight tested. A second Soviet strategic bomber is estimated to be in the advanced development stage, and may be operational by 1982. This second aircraft is reportedly similar in performance characteristics to the U.S. B-1.¹¹⁶ Additionally, the Soviets are believed capable of developing an air launched cruise missile (ALCM) comparable to the U.S. design. Recent disclosures indicate the Soviets are testing long range ALCM's with the Backfire bomber

as the launch platform.¹¹⁷ Nevertheless, this element of Soviet strategic forces is presently inferior in size and sophistication to that of the U.S.¹¹⁸ This is again reflective of the Soviet decision to concentrate on missile-delivered ordnance as the mainstay of the strategic arsenal.

4. Strategic Defenses

Strategic defenses fall into two distinct categories. The first, active defenses, relate to those capabilities and procedures available with which one can actively engage an opponent's arriving offensive weapons with the objective of reducing the level of damage inflicted. The second category, passive defenses, concerns those measures employed to reduce the lethal effects of an opponent's offensive weapons after arrival on target. Systems commonly included in the former category include anti-ballistic missile (ABM) defenses and air defense systems. Measures associated with the latter category consist of hardening and dispersal of military and economic targets and civil defense procedures.

Under provisions of a 1974 protocol to the SALT I treaty, the Soviet Union is permitted to deploy a single ABM system consisting of not more than 100 missiles and launchers. The Soviets have constructed four ABM complexes in the vicinity of Moscow. Each of these consists of 16 "Galosh" missiles, two large tracking radars, and four interceptor guidance tracking radars. The Galosh missile utilizes a multi-megaton warhead designed to intercept incoming missiles prior to re-entry into the earth's atmosphere. An improved version of the Galosh missile which incorporates a "loiter" capability is believed to have been developed.¹¹⁹ This feature enables the stopping and starting of the missile's motors while ground radars attempt to distinguish incoming warheads from decoys.¹²⁰ The effectiveness of the Moscow ABM system has been assessed by U.S.

analysts as being capable of defending only against small or accidental attacks.¹²¹ The Soviets continue, however, to devote a substantial effort toward research and development of ABM technology.¹²²

The strategic air defense forces of the Soviet Union are the world's largest and most expensive. They consist of over 5,000 early warning and intercept radars, 12,000 strategic surface to air missiles (SAM), and over 2,600 manned interceptor aircraft.¹²³ The Soviet obsession with air defense of their homeland can easily be understood when one recalls the influence of their historical experience and the fact that over 65% of the U.S. strategic equivalent megatonnage could be delivered via manned aircraft. Despite this massive allocation of resources, the Soviet anti-bomber defense system is considered somewhat vulnerable to low altitude penetration. Accordingly, significant efforts are underway to upgrade air defenses. As an interim measure certain radars have been elevated to improve their line of sight. The main effort, however, appears to be oriented toward development of a "lookdown-shootdown" capability.¹²⁴

The Soviet Union has demonstrated significant initiatives in the field of passive defenses, most notably in civil defense. Soviet capability in this area is a highly controversial subject that has been hotly debated by U.S. observers. The significance of the effectiveness of a civil defense program can best be grasped when one envisions a scenario involving the evacuation and protection of population prior to initiation or threatened execution of a nuclear attack. It must be noted, however, that this capability alarms only those who embrace a deterrent strategic doctrine. Such doctrine hinges on population vulnerability. Reduction of that vulnerability has the resultant effect of

drastically curtailing the credibility of any deterrent based strategy. This then, is the reason for the controversy in the U.S. over the extent and effectiveness of Soviet civil defense programs. It is safe to observe that no similar debate over the "destabilizing" effect of passive defenses exists within the Soviet Union.

The Soviet civil defense effort is headed by General Colonel A. Altunin who occupies a position of deputy Minister of Defense. He directs an organization which includes some 70 general grade officers and over 100,000 full time civilian and military personnel stationed throughout the country.¹²⁵ Civil defense training is compulsory for all Soviet citizens. Courses are administered in the second, fifth, and ninth grades of Soviet schools which total 52 hours of instruction. Each year some 20 million children participate in civil defense exercises as part of a national military exercise. A 20 hour civil defense course, which is compulsory for all adults, is repeated annually.¹²⁶

Defense of the population is to be achieved primarily through evacuation to rural areas. In 1974, however, an apparent shift in emphasis from evacuation to shelter construction was noted.¹²⁷ The U.S. Secretary of Defense has observed that the goal of the Soviet civil defense effort is to protect the political and military leadership, key workers, food stuffs, and essential equipment. The bulk of the population is to be protected through the use of basement shelters, subways, and evacuation.¹²⁸ Hardening and dispersal of industrial facilities are the primary means of shielding economic capabilities from destruction.¹²⁹

The physical distribution of Soviet population and industrial capacity appears to support an active civil defense effort. Only 8% of the population and 25% of the industrial facilities are housed within the

the ten largest cities of the Soviet Union. The 100 largest urban areas contain 25% of the population and 50% of the industry. Forty-seven percent of the population and 82% of the industry are dispersed among 1000 of the largest Soviet cities.¹³⁰

The effectiveness of the Soviet Civil Defense effort has been questioned by many.¹³¹ Indeed, one must be skeptical of any program purported to defend a population from the effects of nuclear weapons. However, it would appear that the level of effectiveness of such programs is not as significant as the mere existence and magnitude of effort devoted to these programs. Critics argue that despite elaborate measures designed to reduce population and industrial vulnerability the Soviet Union could not absorb a nuclear attack without massive casualties. Undoubtedly this is true, but those same skeptics may fail to understand those aspects of the Soviet civil defense effort which are highly effective and the impact they have as an element of the strategic forces. Imperfect as it may be, the civil defense program represents a conscious effort to reduce vulnerability. It thus, reflects the notion that nuclear war is survivable.

C. DEVELOPMENTAL TRENDS

The evolutionary development of Soviet strategic nuclear forces illustrates a dramatic commitment to the goal of escaping the perceived stigma of strategic inferiority. Quantitatively, strategic delivery vehicles have increased 674%, from 387 in 1963 to 2,610 in 1978. In 1963, ICBM's represented 23% of the Soviet arsenal (90 missiles). By 1978, however, this figure increased 1556% to a deployed level of 1400 ICBM's, which represents 54% of the strategic arsenal. SLBM's accounted for 28% of nuclear forces in 1963 (107 missiles), and increased 930% by 1978 to a

level of 995, which accounts for 38% of strategic weapons. During this same period, long range bomber deployment decreased by 29%, from 190 in 1963 (representing 49% of the 1963 arsenal) to 135 in 1978 (8% of the 1978 strategic forces).¹³² Figure four illustrates the growth of strategic forces.

The commitment to qualitative improvements has been no less impressive. Some of these improvements appear to be designed to imitate technological innovations of the U.S. while others represent initiatives indicative of a desire to attain breakthroughs which will yield a substantive edge in the "strategic arms race." Secretary of Defense, Harold Brown, has candidly acknowledged that during the 1950's and 1960's the U.S. was responsible (though unwittingly, he maintains) for initiating the action-reaction pattern in growth and sophistication of strategic forces. Subsequently, he notes, the Soviet Union's behavior has been "driving the interaction".¹³³

The nature of these improvements can be divided into four general categories for analysis. The first, identified as performance characteristics, includes increases in throw weight, specifically that of strategic missiles. In 1964, Soviet missiles were capable of propelling 800,000 pounds. By 1976, this figure had risen to 8.6 million pounds.¹³⁴ Significant increases in equivalent megatonnage have also been accomplished, i.e., 1102 EMT in 1964, to 4861 EMT in 1976.¹³⁵ Major improvements in the application of MIRV technology have been attained. Finally, significant increases in the accuracy of strategic weapons have been achieved. Advances in these latter two categories, once the hallmark of U.S. strategic superiority, were major factors contributing to the Soviet Union's rise to a position of nuclear parity circa 1969.

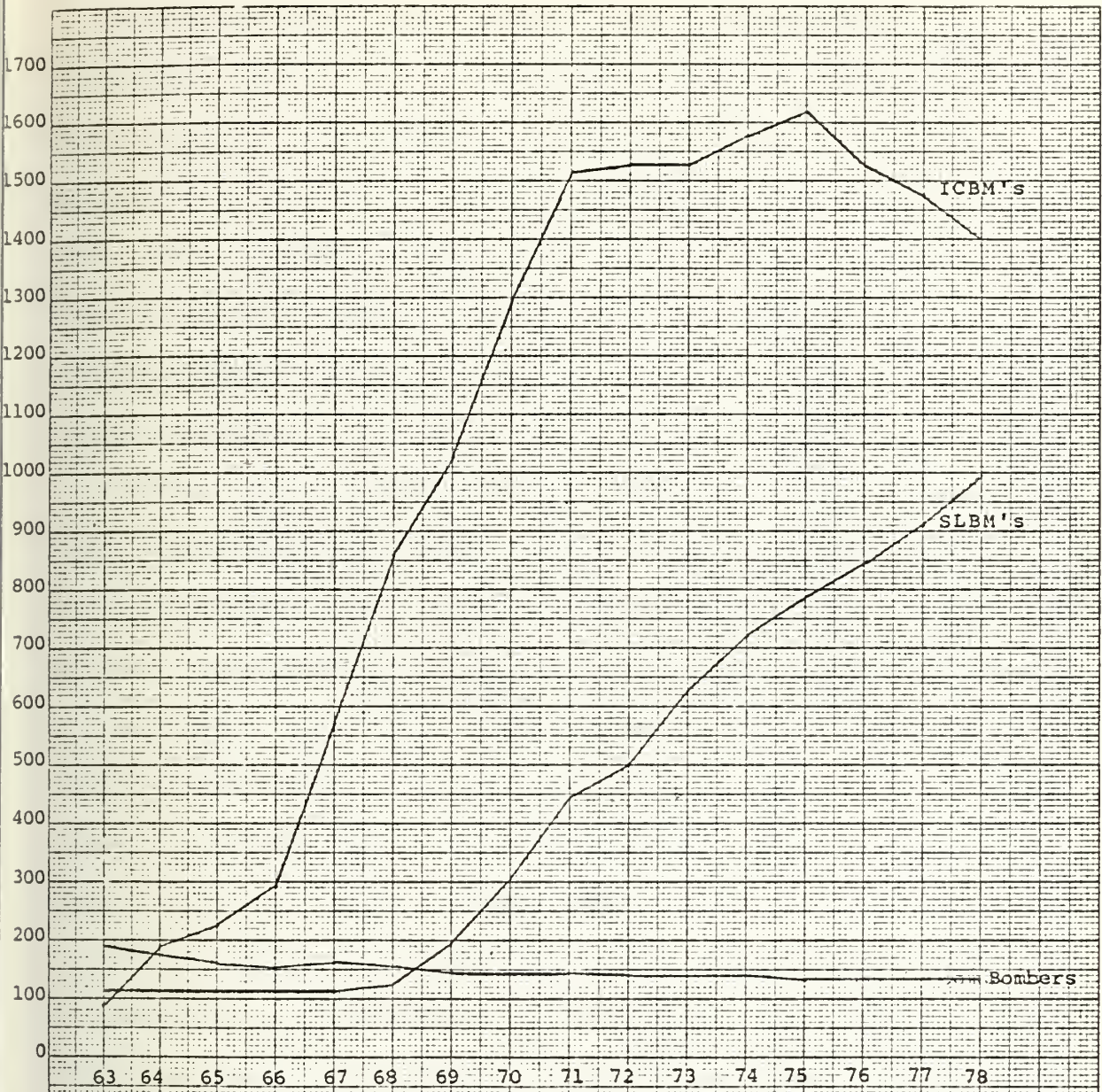


FIGURE 4: Growth of the Strategic Forces of the Soviet Union

Source: The Military Balance 1978-1979, (London: International Institute for Strategic Studies, 1978). Measurements are in numbers of launch vehicles.

The second category concerns innovations in employment techniques and includes adoption of the cold launch capability, development of the mobile SS-16 and SS-20 missiles, and testing of Fractional Orbital Bombardment and Depressed Trajectory delivery techniques. Other improvements include upgrading the structural hardness of missile silos, substitution of silo housed launch control facilities for the more vulnerable bunker housed installations, and modification of older silos to enable accommodation of newer generation missiles.¹³⁶

The third area of qualitative improvement consists of an energetic research and development program devoted to the acquisition of operative technology which will sustain or widen the Soviet lead in strategic systems. Areas receiving the focus of this effort include ABM research and anti-bomber defenses.¹³⁷ Another aspect involves development of a viable anti-satellite (ASAT) weapon. Indeed, the Department of Defense credits the Soviet Union with an ASAT capability based on the observation of eight tests against target satellites since 1976.¹³⁸ Perhaps, the most ominous element of the Soviet R & D effort is that devoted to the perfection of a charged particle beam weapon. In simplistic terms, this system propels atomic particles at high velocities to destroy targets with high energy concentrations.¹³⁹ This weapon has two primary strategic applications. First, it would provide an ABM capability from ground stations or orbiting spacecraft. Second, it offers the potential for generation of a high level radiation beam from a space platform which could be targeted on earth to produce damage similar to that associated with a "neutron bomb." Large scale employment of this weapon could enable the destruction of the targeted population with virtually no damage to the physical surroundings. Soviet R & D programs

are reported to be proceeding toward the acquisition of each of these capabilities.¹⁴⁰ Some estimates project Soviet deployment of this weapon in an ABM mode as early as 1980.¹⁴¹

The final and related element of qualitative improvement demonstrated by the Soviet Union is a penchant for the continued rejuvenation of strategic forces. As has been noted above, while deploying the fourth generation of ICBM's, work is nearing completion on yet a fifth. Similar developments are occurring in Soviet submarines and SLBM's. Significant efforts are underway to upgrade the sophistication of aircraft delivered strategic weapons.

The trend in development of Soviet strategic nuclear forces appears unmistakable. Secretary of Defense Brown has observed that the Russians have built their missile forces to the limits of the SALT I agreement. Moreover, he has indicated that there is no doubt about the Soviet ability to deploy more strategic weapons than they are now believed to be programming.¹⁴² One might well ask what significance these trends portend. Secretary Brown has provided the following assessment:

Exactly what the Soviets are trying to accomplish with their large and growing strategic capabilities is uncertain. Perhaps it is pure deterrence. But if it is, their definition of pure deterrence appears quite different from our own...Much of what they are doing both offensively and defensively coincides with the actions that would support a damage limiting strategy. And it is within the realm of possibility that they are attempting to acquire what have been called 'war winning' capabilities. Whatever the intentions and motives the Soviets have, we face two related problems as the result of their activities. They are the increasing vulnerability of the U.S. ICBM force, and the expanding scope of Soviet active and passive defenses.¹⁴³

D. STATIC BALANCE OF STRATEGIC POWER

Although the subject of this inquiry is Soviet strategic nuclear forces, it is felt appropriate to provide a brief comparison of Soviet

capabilities with those of the U.S. This will serve to highlight some of the asymmetries in force composition which will reveal the different doctrinal perspectives of each country, indicate weaknesses of either side in specific areas of force composition, and may surface certain latent features of the strategic arsenals which would yield insight as to future developments in the "strategic arms race."

At the outset, it is necessary to indicate that a statistical rendition of the static balance of strategic nuclear forces has its limitations. Apart from the speculative nature of the quantitative composition of Soviet forces, accurate assessment of qualitative capabilities presents a formidable obstacle to the ultimate validity of any comparison. Basic data on Soviet forces is derived from sanitized intelligence which is subject to the prejudices of both the means of collection and the analyst's interpretation. This is made more complex by the Soviet penchant for employing extensive cover and deception techniques to disguise actual capabilities and intentions, not to mention the fact that the Soviet Union is a closed society. While a greater degree of confidence can be placed in the quantitative and qualitative composition of U.S. strategic forces, various uncertainties still exist. Additionally, a static comparison fails to reveal the impact of situational events on the performance capabilities of strategic forces. For example, the intensification of an international crisis may cause either actor to implement procedures which may serve to upgrade the comparative capability of his forces.

A final qualification to the validity of a statistical balance of forces concerns the recent emphasis placed on the strategic connotation of the terms "superiority", "parity", and "inferiority". For reasons

stated above these terms are at best imprecise when applied to the full spectrum of strategic forces. Unless one is careful to discriminate among the various "estimated" capabilities of the individual components of that spectrum, and consider the offsetting capabilities of other weapons systems classed as strategic, one will be unable to arrive at a sober and realistic comparison.

Most public perception of the nature of the strategic balance in the West is determined by two basic variables - who has the most and who has the newest. On initial examination, the Soviet Union enjoys a clear lead in the former category and a massive lead in the latter.¹⁴⁴ A more accurate statistical assessment may be obtained when one examines the substantive capabilities of each force. For example, the static comparison of SLBM's would indicate a significant Soviet lead (U.S.: 656, U.S.S.R.: 995); however, when one views this element of strategic weapons in terms of independently targetable warheads, the picture is quite different (U.S.: 5,120, U.S.S.R.: 995). It is thus necessary to proceed beyond superficial calculations to ascertain a more meaningful comparison. Figure five represents an attempt to accomplish this.

Of significance is the emphasis each state accords the various strategic forces. Figure six illustrates the relative distribution of each arsenal among the three offensive delivery systems. The Soviet Union places the preponderance of its strategic military power in the ICBM category. The second priority is allocated the SLBM force. A disproportionately low emphasis is placed on the strategic bomber element. In contrast, the U.S. relies on the bomber element to deliver the bulk of its nuclear power.

DEPLOYMENT LEVELS ^a		NUMERICAL BALANCE		PERCENT LEAD	
US	USSR	US	USSR	US	USSR

ICBM's:

Launchers Deployed	1054	1400		+346	33%
Warheads ^b	2154	3350		+1196	56%
Equivalent Megatonnage ^c	1313	3214		+1901	145%
Throw Weight (million lbs)	2.2	8.4		+6.2	282%

SLBM's:

Launchers Deployed	656	995		+339	52%
Warheads ^b	5120	995	+4125		415%
Equivalent Megatonnage ^c	837	1400		+563	67%
Throw Weight (million lbs)	1.1	1.5		+ .4	36%

STRATEGIC BOMBERS:

Bombers Deployed ^d	432	215	+217		101%
Deliverable Weapons	3973	290	+3683		1270%
Equivalent Megatonnage ^c	4400	780	+3620		464%

AGGREGATE FORCES:

Delivery Vehicles	2142	2610		+468	22%
Warheads	11247	4635	+6612		143%
Equivalent Megatonnage	6550	5394	+1156		21%

FIGURE 5: Strategic Balance

a. As of July 1978

b. Independently targetable warheads

c. $EMT = Y^{2/3}$ for yields below one megaton. For yields larger than one megaton, the lower scaling law of $Y^{1/2}$ is used. Totals assume maximum yield values indicated in figures one and two.

d. Figures include 366 B-52's and 66 FB-111A's for the US and 100 Bear, 35 Bison, and 80 Backfire for the USSR.

Author's estimates derived from The Military Balance 1976-1977, 1977-1978, and 1978-1979, (London: International Institute for Strategic Studies).

	PERCENT OF TOTAL LAUNCHERS	PERCENT OF TOTAL WARHEADS	PERCENT OF TOTAL EMT
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ICBM's:

US	49	19	20
USSR	54	72	60

SLBM's:

US	31	46	13
USSR	38	22	26

STRATEGIC BOMBERS:

US	20	35	67
USSR	8	6	14

FIGURE 6: Distribution of Strategic Forces

The ultimate question which arises when one concludes an assessment of the composition of a strategic arsenal relates to the effects resulting from the employment of that arsenal in an attack. Numerous observers have posited various calculations which project the effects of a nuclear exchange under different scenarios. The validity of these calculations may be analogous to that obtained in estimating the number of grains of sand remaining on a beach after the arrival of a tidal wave. Many of the variables associated with the above evaluation of the static balance of power operate to cloud the results of these estimates. Additionally, the outcome of a nuclear attack will depend primarily on the nature of the targets involved and the degree to which the targeted state is able to anticipate the attack.

Unclassified U.S. estimates indicate that a comprehensive Soviet attack on all U.S. ICBM's, strategic bombers, and SSBN bases would yield six to ten million casualties. A similar attack on Soviet forces is estimated to produce fewer casualties owing primarily to population density and the lower yield of U.S. weapons. In a general war, the Soviets are estimated capable of killing 80 to 120 million Americans. This contrasts with Department of Defense calculations which indicate similar U.S. attacks would yield 50 to 100 million Soviet deaths without civil defense, and 30 to 80 million with minimal civil defense.¹⁴⁵ The danger of these calculations, however, lies not in their accuracy, but in the possible influence they may exert on the perceptions (and resultant behavior) of an assertive decision maker in a crisis environment of heightened international tension.

This assessment of the strategic forces of the Soviet Union was introduced as an attempt to provide insight into two basic but related

questions. First, does the strategic arsenal adequately support national security objectives? Second, what type of doctrine would operate to produce a strategic arsenal with the complexion of that of the Soviet Union?

The first question is answered positively. Soviet strategic forces are increasingly capable of supporting the full spectrum of military options, i.e., defend, deter, attack, and can thus be applied in pursuit of a wide range of desired national objectives. While the strategic arsenal has not yet reached the level at which it can function as a viable tool of political coercion, there is some evidence to suggest that it is perceived to have produced desired political objectives. Consider for example, the recognition of equality among superpowers contained in the 1972 bilateral agreements. The Soviets view this recognition as one of U.S. acquiescence caused wholly by a shift in the "correlation of world forces." The most significant "shift" in this correlation occurred in the category of strategic military power, primarily as a result of the growth of the Soviet arsenal. Once this logic is factored out, it becomes apparent that continued pursuit of massive strategic force levels is perceived to facilitate additional "shifts" in the correlation of forces which further Soviet objectives. The size, composition, and continued growth and modernization of the Soviet arsenal tend to support this observation. In this context, it is also helpful to recall the fact that the Soviet Union has built its forces to the limits of SALT I.

The composition of Soviet strategic forces also reveals much about Soviet doctrine. The most striking feature of this arsenal, and the trends displayed in its development, is the total rejection of the principles of deterrence through assured destruction. It is necessary

to distinguish between deterrence as a de facto condition resulting from a certain strategic balance of power and deterrence as a strategic concept. Clearly, the Soviets recognize the former interpretation. The nature of their strategic forces, however, violates the conceptual tenets of an assured destruction deterrent strategy, a key element being some degree of mutual vulnerability. Soviet force developments and strategic programs are designed to reduce vulnerability across the board and to limit damage to the maximum extent possible. At the same time, these forces are structured to exploit the vulnerabilities of opposing strategic arsenals.

The notion of mutual vulnerability is naturally repugnant to the Soviet mind. Implicit within this concept is the notion of mutual trust - a quality not to be found in the Soviet experience. The Soviet approach is much more realistic and self-reliant. They have discarded the idealistic abstraction that the enormous consequences of a nuclear exchange alone function to make its occurrence unlikely. Their strategic forces represent a rational attempt to cope with the possibility of a nuclear contest. For the Soviets, to "cope" is synonymous with "to succeed and survive".

The nature and composition of the Soviet strategic arsenal clearly supports a war fighting rather than an assured destruction doctrine. The heavy reliance on missile delivered weapons with large throw weight capabilities; the number of warheads with massive levels of destructive power; and the increased accuracy of the newer weapons serve to reinforce this doctrine. Soviet ICBM's are becoming formidable counterforce weapons. The accuracy and yield combination of the SS-18 alone provides the capability of destroying even the most hardened target. Consider

what this force will be capable of once fully modernized by the replacement of older systems with the current generation SS-17's, SS-18's, and SS-19's, not to mention the "new" missile authorized under SALT II. Former Secretary of Defense Schlesinger observed that the Soviets would require a total of 2,158 warheads to attack each U.S. ICBM site with two weapons and each nuclear submarine and Strategic Air Command base with one weapon.¹⁴⁶ The Soviet ICBM force presently exceeds this requirement by over 1,000 warheads. Once fully modernized, this arsenal could be equipped with upwards of 5,000 powerful and highly accurate MIRVed warheads within the limits of SALT II.

The one strategic capability necessary to complete the Soviet nuclear war fighting arsenal is an effective ABM. Although this is prohibited under SALT I, the impressive R & D effort devoted to perfection of ABM technology (especially particle beam) suggests a Soviet desire to have this defensive mechanism "on the shelf" ready for deployment. An energetic civil defense program provides an interim and supplemental defense. Deployment of a viable ABM system at some point in the future, coupled with an effective first-strike ICBM force and adequate civil defense would complete the necessary counterforce/damage limitation requirements for a comprehensive war fighting posture.

This war fighting disposition does not, however, suggest a Soviet desire to prosecute such a war. The avoidance of this type of conflict is a high priority objective. However, the Soviet view is that war can best be avoided if the U.S.S.R. is capable of fighting it. This capability is to be maintained with the continued growth and modernization of the strategic arsenal.

IV. STRATEGIC DOCTRINE OF THE SOVIET UNION

A. SOURCES OF SOVIET DOCTRINE

This examination of doctrinal thought is based exclusively on original Soviet sources. The credibility of the sources employed herein follows from several objective conditions. First, the Soviet Union enjoys no exemption from the need to communicate among its people. Despite the restrictive totalitarian nature of Soviet society, it is faced with the requirement of informing, educating, and preparing the population on a wide spectrum of issues, both foreign and domestic. This need becomes even more critical in the field of military affairs, because a unified informed officer corps is essential for the proper conduct of any military operation. Second, the prohibition of unauthorized dissent in Soviet military writings lends credence to that which is published. All military publications are carefully scrutinized and censored.¹⁴⁷ That which is printed thus reflects leadership sanction.

The monotonous consistency of Soviet military writings is an additional feature indicative of both its credibility and its continuity. The continuous repetition of identical concepts and doctrinal pronouncements by authors of various backgrounds and experiences serves to sanctify those concepts. Additionally, the similarity of phrases used to express the Soviet view of the nature and conduct of modern war functions to highlight key doctrinal principles.

The majority of Soviet sources utilized in this analysis date roughly from 1965 to 1975. Despite radical changes in the international situation during this period, an amazing consistency of doctrinal thought

is evident. When one considers that during this decade the Soviet Union rose from a position of distinct strategic inferiority to parity and beyond, encountered several international crisis situations, engaged in unprecedented strategic arms limitation negotiations, and attained political recognition of equality among superpowers, one might expect to witness a corresponding transition in military thought. This is not the case. The views of modern war and its conduct expressed in 1965 are to be found in contemporary writings. If any change can be discerned, it is in the degree of sophistication with which these views are expressed. This period is significant from another perspective. The writings which emerged during this decade were sanctioned by the present Soviet regime, and thus reflect current military thinking.

This study of doctrinal writings has revealed what appears to be three general categories of military authors. The first consists of those who discourse on the theoretical/ideological plane, devoting the bulk of their efforts to the discussion of the application of Marxist-Leninist philosophy to matters military. Members of this category include military academicians. The second element consists of those military authors who concern themselves with the application of doctrinal thinking to the realities of military operations. Frequently addressing tactical issues, they incorporate the principles expressed by the ideologues into military sensible procedures. This element consists largely of combat arms officers who are empowered with military leadership responsibilities. The third category of authors appear to consolidate the two former. Having extensive military experience and occupying a prominent position in the establishment, these authors frequently address

themselves to the integration of the theoretical and the tactical. Included in this category would be authoritative military figures. Apart from the specific focus of each group of authors, all are consistent in their approach to military issues. Thus, regardless of which category an author represents, the substance of his contribution may contain significant doctrinal implications. Here again, it is helpful to recall that publication in an official source legitimizes content.

One interesting feature of Soviet military writings which tends to permeate all "educational" articles in the military press is their penchant for exclusive reliance on non-Soviet examples to illustrate new technologies, weapon systems, etc. One example is the collection entitled Scientific-Technical Progress and the Revolution in Military Affairs, edited by Gen. Col. N. A. Lomov, wherein the workings of U.S. strategic weapons systems are described as a vehicle for acquainting the audience with the nature of modern weapons. Extensive use of open source material on U.S. systems and capabilities is made to educate and inform. It is extremely rare to find reference to the characteristics of Soviet weapon systems. This predisposition to secrecy parallels the Soviet decision in SALT I to utilize U.S. estimates of the numbers and capabilities of Soviet strategic weapons as the basis for negotiation rather than disclose actual characteristics of Soviet systems.

Another aspect of Soviet military writings which is illustrative of the means used to communicate strategic principles is a further reliance on Western sources to inform and endorse certain delicate or provocative strategic concepts. One analyst has observed that Soviet description of subjects expressed in Western sources without criticism is tantamount to implicit endorsement.¹⁴⁸ This tactic is frequently invoked. For example,

when discussing the delicate issue of a surprise first strike, numerous authors, using Western military sources, merely recount how important the issue of surprise can be in the conduct of a nuclear war. There is no overt advocacy of the strategic utility of a surprise first strike (for to do so would provoke grave concern both at home and abroad), but neither is the option criticized. The reader cannot avoid reaching the conclusion that such an approach could endow the Soviet Union with immeasurable advantages. Techniques as subtle as these find frequent expression in Soviet military writings.

Among the numerous sources employed in this examination, two appear worthy of special comment. The "Soviet Military Thought" series, published under the auspices of the U.S. Air Force, consists of 14 volumes of Soviet writings translated from such Soviet sources as The Officer's Library and other works presented by Voenizdat, the Military Publishing House of the Ministry of Defense of the U.S.S.R. The purpose of The Officer's Library, which consists of 17 volumes, is to "arm the reader with a knowledge of the fundamental changes which have taken place in recent years in military affairs."¹⁴⁹ Other volumes of "Soviet Military Thought" are introduced with the caveat, "This book is designed for officers and generals of the Soviet Army."¹⁵⁰ A thorough reading of this series yields significant insight on the Soviet view of military doctrine, strategy, and tactics.

Voyennaya Mysl' (Military Thought) is the classified monthly journal of the Soviet Ministry of Defense and the Soviet General Staff.¹⁵¹ By its own admission, it is the

basic military-theoretical organ of the Ministry of Defense...It organized and published materials on a wide circle of problems of the theory and practice of Military Affairs at a level which chiefly satisfied the inquiries¹⁵² of senior and higher echelons of the command staff and personnel.

Penkovskii spoke of, and passed to Western intelligence, a top secret "Special Collection" of this journal in the early 1960's. In his memoirs he expressed chagrin at the content of the top secret special collection, specifically with regard to the emergence of a "new (nuclear) military doctrine." Penkovskii summarized this doctrine, as expressed in the special edition, as follows:

First, let me say that virtually all authors recognize the importance of the first thermonuclear strike...Secondly, strategic nuclear missiles, which will play a tremendous part in the initial stages of war, will also make it possible to achieve the necessary strategic goals of the war within the shortest possible time...A future war will begin with a sudden nuclear strike against the enemy. There will be no declaration of war...When circumstances are favorable for delivering the first nuclear strike, the Soviet Union will deliver this strike under the pretense of defending itself¹⁵³ from an aggressor. In this way it will seize the initiative.

The reader will subsequently note that the content of the issues of Voyennaya Mysl' employed in this examination of Soviet doctrine bears a striking resemblance to the substance of the special collection which alarmed Penkovskii.

Issues of this journal were acquired by the Central Intelligence Agency, presumably soon after publication in Moscow. Selected issues were translated by the CIA Foreign Press Information Services, CIA Foreign Documents Division, and the Foreign Broadcast Information Service some months after the date of each issue. On 2 December 1976, a total of 58 issues of Voyennaya Mysl' were declassified and made available on microfiche. These journals, consisting of nearly 6,000 pages, were published in the Soviet Union during the period 1963 to 1969.

The subject content of Voyennaya Mysl' covers a wide variety of military issues ranging from theoretical ("Concerning the Nature and Classification of Certain Phenomena in Armed Struggle") to the provocative ("Modern Warfare and Surprise Attack") and to basic tactical requirements ("Calculating a March When Rubble and Obstacles Block March Routes"). The journal represents a very serious and realistic approach to the discussion and resolution of certain issues and problems perceived by the Soviet military elite to exist with regard to the conduct of modern war.

B. DOCTRINE DEFINED

In Western usage, the term military doctrine defines a set of fundamental principles employed by military forces as a guide to the accomplishment of objectives.¹⁵⁴ In Soviet usage, the term has quite a different meaning. The Soviet definition of military doctrine has a wider application and incorporates political considerations as the basic substance of doctrine. Technically defined, voyennaya doktrina is: "A nation's officially accepted system of scientifically founded views on the nature of modern wars and the use of armed forces in them, and also on the requirements arising from these views regarding the country and its armed forces being made ready for war."¹⁵⁵

It is first a political statement on the perceived nature and character of modern warfare and second a statement on the military methods of waging war. There are two aspects of Soviet military doctrine: the political and the military-technical. The former is "concerned with the political evaluation of the military tasks of the state,"¹⁵⁶ and is clearly the dominant consideration in the formation of doctrine.

The latter aspect concerns the conduct of war and "determines the military-technical tasks of the armed forces, and the means, methods, and forms of armed combat."¹⁵⁷ These two elements converge in the form of military doctrine to yield "the political policy of the Party and the Soviet government in the military field."¹⁵⁸ Soviet doctrine, as a political statement, functions to define war and prepare the state for its conduct. It identifies the enemy to be faced in a future war, indicates the type of war that will be fought, prescribes the composition and nature of forces needed in war, directs adequate preparation for war, and determines the methods of waging war.¹⁵⁹ The foundation of military doctrine, in the Soviet view, is the understanding of the essence of war as the continuation of politics.¹⁶⁰

The substance of military doctrine is dependent upon the current state of affairs in the world arena, to include "foreign and domestic policy, the sociopolitical and economic system, level of production, status of means for conducting war, and the geographic position" of the combatants.¹⁶¹ Soviet military doctrine is not immutable but develops on the basis of "the alignment of political forces in the world and the policy followed by the state, the status of the country's economy, improvements in means of conducting war, and the growth in combat capabilities of the Armed Forces."¹⁶²

In the Soviet lexicon, military science is subordinate to military doctrine and consists of a system of knowledge concerning the preparation for and waging of war. Included within this discipline are various topical subdivisions. The most important of these is the theory of military art, which is defined as:¹⁶³

The theory and practice of engaging in combat, operations, and armed conflict as a whole, with the use of all the resources of the service branches and Services of the Armed Forces, and also support of combat activities in every regard. Military art... includes tactics, operational art, and strategy, which constitute an organic unit and are interdependent.¹⁶⁴

The three sub-components of military art relate to individual tiers of activity which are linked in a progression leading to the accomplishment of the objective in war-victory. Tactics concern the actual military operations at maneuver echelons. Operational art addresses the management and integration of joint and independent operations on a broader scale such as an entire theater of military operations. The most important element of military art is strategy, which involves the comprehensive effort to attain victory in war. Strategy is dependent upon military doctrine, and is closely linked to a state's economic capabilities.¹⁶⁵

Historically, the Soviets viewed the linkage between each element of military art as the means of attaining victory. Thus, tactical successes lead to operational successes which, in turn, produce strategic successes. In the Soviet assessment, the introduction of long-range nuclear weapons has altered this progression, making it possible to achieve strategic objectives directly. No longer is it necessary to turn tactical victories into operational successes, etc.¹⁶⁶

There is a close relationship between military doctrine and strategy. Doctrine can be viewed as a policy statement, and strategy as policy execution. During peacetime, doctrine governs the planning and preparation for war. In wartime, strategy implements doctrine.¹⁶⁷

Having established the definitive nature of Soviet doctrinal concepts, it is now appropriate to take a preliminary look at the substance

of Soviet military doctrine. Various Soviet pronouncements have summarized the doctrine as being offensive in character; however,

The Soviet Union and other countries of the socialist community do not intend to attack anyone at all; but, if they are attacked, they will wage the war imposed upon them by their enemies in the most offensive fashion in order to bring about the rapid defeat of those enemies.¹⁶⁸

Another key principle of Soviet doctrine is the assignment of the decisive role in war to nuclear weapons, not to preclude, however, the need for the fully coordinated employment of all elements of the Soviet Armed Forces to achieve success.

The most interesting feature of this characterization of Soviet doctrine is the total absence of any theoretical content. When one speaks of strategic doctrine in the West, one conjures shades of deterrence theory, e.g., mutual destruction, flexible response, etc. In essence, this Western theoretical approach equates to the political abstraction and application of artificial military calculations to the problems associated with nuclear war. Military doctrine in the West amounts to what is simply a political statement designed to avoid nuclear war. Its military content is limited. One finds none of this in Soviet doctrine. Instead, the Soviets concern themselves with a realistic approach (unencumbered with abstraction) to the rational treatment of contemporary military issues. Although Soviet military doctrine is closely dependent upon the political policy of the state, its content is devoid of political utility.

Robert Legvold has made the astute observation that the Soviet Union lacks a military doctrine in the Western sense and substitutes instead common military strategy, i.e., the operational concepts of war.¹⁷⁰

This he contrasts with the U.S. approach to the creation of a military doctrine viz deterrence, which is "an explicit intellectual construction, invented by civilians, and rooted in psychological or game theory, not the organizational theory of military science."¹⁷¹ While this subtle distinction can easily be lost in semantic debate, the key issue remains the basic point of departure when formulating military doctrine. In U.S. circles, it is an abstract theoretical calculation of how nuclear war can be avoided. In the Soviet view, military doctrine lacks the abstract theory and substitutes instead a war fighting strategy. This feature of Soviet doctrine will be made more lucid as the Soviet perception of various strategic principles is examined in detail.

C. LESSONS OF HISTORY

The Soviet military devotes considerable effort to the analytical study of political-military history, which is viewed as an important source for the development of military doctrine and strategy.¹⁷² In addition to isolating specific strategic lessons emerging from the course of military history, the Soviets believe its analysis will assist in directing the development of future weapons and forces.¹⁷³ The concentration of this effort is on the military history of the twentieth century, most notably on the "Great Patriotic War." The lessons proffered by Germany in World War II have received no greater study than that which has been allocated by the Soviet Union. The memories associated with this conflict has been institutionalized and will not soon be forgotten. Next to the "revolution in military affairs" introduced as a result of nuclear weapons, the lessons of this war constitute the most significant influence on current Soviet military doctrine and strategy. Soviet

writings on the military history of the Great Patriotic War represent one of the few issues on which the Soviet Union is willing to admit mistakes. Most of the errors of the war, and thus most of the lessons of its history, concern the period immediately prior to its outbreak and its initial stages. Inability to predict the German offensive on the Eastern Front constitute the first teaching of this experience.

The increasingly difficult trials which our armed forces suffered during the very first hours of the war were compounded by a number of serious errors. I. V. Stalin made an error in appraising the military-political atmosphere on the eve of the war, relating mainly to determining the timing of Fascist Germany's attack on the Soviet Union.¹⁷⁴

The next significant lesson of the war concerned the total lack of preparation for its conduct. The forces were not adequately positioned to oppose the invasion and the readiness level of military formations was not upgraded from the peacetime standard.¹⁷⁵ Failure to grasp the significance of the initial period of the war is another error which led to serious consequences.

Soviet military thought had...on the whole correctly determined the nature of the future war, the means and forms of armed conflict. However, it had not yet sufficiently and fully analyzed the radical changes introduced in the already available experience of World War II on the content and nature of the initial period of the war. The consequences of the powerful and sudden attack inflicted on our¹⁷⁶ country were the most dire for the Soviet People and their army.

The skillful application of the element of surprise is perhaps the single most important lesson the Soviets have taken from the war. The inseparable linkage of surprise with acquisition of the strategic initiative is viewed as a major determinant of the course and outcome of war. Germany's employment of surprise enabled her to seize the strategic initiative early, and thus prolonged the war and intensified the casualties.



A sneak attack against the U.S.S.R. enabled Nazi Germany in 1941 to achieve certain strategic successes. Although it did not predetermine the outcome of the war as a whole, it significantly complicated the job of defeating the enemy, dragged out hostilities to almost four years and cost us immense casualties.¹⁷⁷

The catastrophic nature of the Soviet experience in World War II is the source of a final lesson of her military history. "The war... caused tremendous losses in our country. Over 20 million Soviet people perished... We lost about 30% of the country's natural resources... Thousands of cities and villages, tens of thousands of plants and factories...lay in ruins..."¹⁷⁸ The lessons of the war have had profound influence on Soviet military and political thought. Military writings frequently make reference to the conviction that a similar experience will never again be allowed.¹⁷⁹

D. THE NATURE OF MODERN WAR

In accordance with the Soviet definition of military doctrine, a significant effort has been devoted to constructing a theory of a modern world war. This has led to the conclusion that a future world war will have three characteristic features. First, it will be a class war conducted between capitalism and socialism (presumably, a Sino-Soviet conflict would not develop into a world war). Second, it will be a coalition war in the sense that it will be international in scope and involve two camps as represented by the two classes. Finally, it will be a thermonuclear war.¹⁸⁰ The basic military view of war proceeds from acceptance of the last characteristic.

A fundamental element of Soviet strategic thinking is the reconciliation of the existence of nuclear weapons with the conduct of war. The introduction of nuclear weapons produced what has been termed a

revolution in military affairs, this being caused primarily by the effectiveness of such weapons, the ranges at which they can be delivered, and the increased importance of the time factor.¹⁸¹ This revolution has radically altered the methods of waging war. First, the traditional distinction between the "front" and the "rear" has been erased. "This means that in contrast to the past, the entire economy, the state administrative system, and the vital centers of the warring sides, regardless of their remoteness, in a nuclear world war become targets for destruction just as the immediate military objectives."¹⁸² Second, the outcome of a war can be decided during its initial stages. "A most important qualitative feature of modern war is the possibility of directly achieving strategic results by using strategic nuclear forces."¹⁸³ Another result of this revolution is its alteration of traditional military missions. "The armed forces under conditions of a nuclear war should be able to carry out missions which differ sharply from the missions which they carried out in the past."¹⁸⁴ The final characteristic which has been mentioned, concerns an increase in the importance of the element of surprise. "The revolution in military affairs to a significant degree has raised the importance of the surprise factor."¹⁸⁵

Of significance is the Soviet military acceptance of the nuclear weapon as an integral element of weaponry. As such, nuclear weapons merely represent an additional means of waging war, no different from the alteration of warfare caused by the introduction of the catapult, the rifle, or the tank. A 1973 article in Red Star maintained "...the appearance of any weapon, including a nuclear weapon, exerts tremendous influence on the methods and forms of warfare. But no weapon can change the political essence of war."¹⁸⁶ A similar acceptance was voiced in an

early Voyennaya Mysl' article. "The military potential of a state, its ability to wage war and win victory, now is primarily determined by its capability of using the power within the nucleus as the basic source of firepower in combination with highly effective rocket means of delivery."¹⁸⁷

The Soviet embracement of nuclear weapons is clearly reflected in writings dealing with all levels of combat. One essential theme of the authoritative work entitled The Basic Principles of Operational Art and Tactics by Colonel Vasiliy Savkin, of the Frunze Military Academy, is the integration of nuclear weapons on the battlefield as an additional aid to victory. One officer, commenting on the basic tactical utility of such weapons, maintains: "If we look at the time now required to breach an enemy's defenses with nuclear missiles, we will see that a zone of field fortifications erected for defensive purposes can be destroyed almost instantaneously."¹⁸⁸ Nuclear weapons are viewed equally as effective when applied in pursuit of strategic objectives. Marshal Grechko advised:

Nuclear missiles introduced fundamental changes in strategy. They increased by many times the role of strategy in winning war goals. While before, including World War II, strategic planners possessed relatively limited means for taking direct action against distant enemy installations, with the adoption of nuclear missiles, they obtained the opportunity of directly accomplishing major strategic missions and thus exerting a decisive influence on the entire course of the war.¹⁸⁹

Thus, nuclear weapons are viewed not only as another complement to a military arsenal, but as the basic and decisive weapon of modern warfare.

The Soviets view war as being guided by a series of independent laws. "War, as any other social phenomenon, develops on the basis of objective laws which are independent of man's volition...The general laws which determine the course and outcome of war will remain in force in a nuclear

missile war as well..."¹⁹⁰ Knowledge of these laws, and of the conditions under which they operate, is claimed to be a prerequisite to success in modern warfare.¹⁹¹

Forms of military action in war are limited to two fundamental categories: "...now, as well as many centuries ago, there exist only two interrelated types of armed struggle--offensive and defensive."¹⁹² The primacy of the former is axiomatic in Soviet military thought, and is recognized as the only means of achieving victory.¹⁹³ This penchant for the offensive also influences the conduct of defensive operations: "...nuclear weapons have established even more firmly the role of attack as the decisive form of military action and have made it necessary to accomplish even defensive tasks by active offensive actions."¹⁹⁴

There is seldom a distinction drawn between a future world war and a nuclear war in Soviet military writing. The two are viewed as inseparable due primarily to the belief that a world war will inevitably escalate to a fight to the death among the protagonists. With stakes as high as these, any and all means of waging such a war are legitimized. The decisiveness of this conflict is explained by the fact that when diametrically opposed social systems clash, the ultimate goal of the warring parties will be the total destruction of the opponent.¹⁹⁵ One of the more volatile comments on this subject contained in the pages of Voyennaya Mysl' maintains: "The existence of the powerful modern weapon in the hands of a socialist state confronted the aggressive militaristic forces with the entirely real prospect of being wiped off the face of the earth if they attempted to start a new world war."¹⁹⁶ General Major Milovidov, one of the most articulate military spokesmen of the 1970's, summarized the totality of a future world war in a 1973 article of Red

Star. "...It was decided unanimously that it is wrong to see war merely as an armed struggle, even though the latter constitutes the specific and determining feature of war. In an armed struggle, all means are subordinate to the interests of victory."¹⁹⁷ The basic military definition of "nuclear missile warfare," to which so much attention is paid in military writings, speaks directly to the ultimate nature of a future world war. Such conflict is defined as "warfare in which the decisive means of attaining victory in battle, in an operation, and in armed combat as a whole, is the nuclear missile--used without restraint by all services--and above all the strategic nuclear weapon."¹⁹⁸

Thus, in the Soviet view, there are few gray areas with regard to the nature of a future world war. Such conflict "stands before mankind in two aspects, i.e., of the necessity of its prevention and the possibility of its being waged."¹⁹⁹ The substance of Soviet strategic doctrine proceeds, therefore, from the latter aspect, and maintains that should a world war occur, it will involve the most decisive combat witnessed in the annals of civilization, will unfold pursuant to a set of objective laws, will inevitably require the use of nuclear weapons, and will demand the unrestricted application of all means available to insure success. With this as the basic point of departure, Soviet military thought holds that it is necessary to implement several measures preparatory to the outbreak of hostilities, most notably, the accumulation of military superiority and the continuous preparation for war.

E. WAR PREPARATION

The Soviets recognize that the decisiveness of a future war dictates that certain immediate requirements be satisfied in preparation for its possible outbreak. Significant attention is paid this subject in military

and political writings. The need for preparation for potential conflict has as its origin the Soviet historical experience and the nature of a modern war. The increased significance of the time factor is the primary consideration which necessitates thorough preparation. Former Minister of Defense Malinovskiy commented in Voyennaya Mysl' on this essential feature.

...We proceed from the fact that its (modern war) initial period has now become the decisive and most responsible and intensive stage. The importance of this period is determined by the fact that the first concentrated nuclear attacks can in great measure predetermine the entire successive course of the war, result in immense losses, and place the people and the country in an exceptionally difficult position. For this reason, tremendous importance attaches to the conduct, while still in peacetime, of all round preparation of the country and armed forces to resist aggression.²⁰⁰

The requirement to prepare is also dictated by economic conditions. The Soviets feel that the duration of a future war may preclude the opportunity of mobilizing industrial facilities to support a war effort. "One must also consider the possibility of a sudden outbreak of war, which may result in very difficult conditions for intensification of military industry. In this connection, the necessary measures have to be taken in time of peace."²⁰¹

A final need for preparatory measures relates to the military requirements of readiness. Marshal of the Soviet Union Sokolovskiy advised readers of Voyennaya Mysl' in October 1968 that

...The consuming, unprecedentedly destructive nature of nuclear war forces us to maintain in constant readiness, even in peacetime, such a structure of armed forces...which would enable us to carry out the strategic missions of a general nuclear war in a short period²⁰² of time and in the most complicated conditions of a situation.

The methods of preparation can be viewed from three perspectives: those allocated the military, economic, and civilian sectors of Soviet



society. Military preparations concern acquisition of state of the art weapons systems. A brief examination of the Soviet military arsenal will reveal the high priority allocated this requirement. Constant readiness is another element and is significant for two reasons. First, as has been indicated, modern conditions limit the time available to upgrade readiness. Second, as was disclosed in Voyennaya Mysl', the maintenance of nuclear forces at constant readiness levels enables concealment of military intentions by obviating the noticeable requirement of mobilizing prior to initiating a strike.²⁰³ Strategic planning is another requisite of military preparation. Two basic types of plans are considered necessary. Those governing possible events in the near term (present to five years hence) and those addressing long-term issues (10 to 15 years), are to be maintained in an updated manner. These plans are to be based on a "scientific prognostication in the area of international relations, on the possibility of conflicts breaking out, and the development of the economy, science, and technology."²⁰⁴

Economic preparation supports the acquisition of modern weapons systems, creates a reserve of military resources to enable conduct of operations during periods when production may be impaired, and plans for a return to economic solvency on conclusion of hostilities. While these tasks are updated continuously, and are intended to be accomplished prior to the outbreak of war, the Soviets also perceive a need for viable economic production capabilities to function during the conduct of a nuclear war. This requirement derives from the belief that although modern war is likely to be of short duration, under certain conditions "it may be dragged out and may require long and maximum effort of all forces of the army and of the country as a whole."²⁰⁵



The most distinctive, and to some observers the most alarming, aspect of Soviet preparation for war is that which is allocated the civilian population. It is in this regard that the Soviets admit to the horrors of a nuclear war. In commenting on the massive casualties and destruction associated with such a war, one author advises: "Even this very incomplete picture of a future world war already obliges the political and military leadership to prepare the people and the Armed Forces of this country for unprecedented hardships and for unusually severe and destructive combat activities."²⁰⁶

The psychological conditioning of the population is viewed as the basic requirement of this preparation.

In case of nuclear warfare, the psychological preparation of the populace will have an unusually great significance because in case of outbreak of nuclear warfare, the entire populace of the warring sides will²⁰⁷ be plunged into the crucible immediately, at the very beginning.

This conditioning is to be accomplished with the thorough indoctrination of Soviet citizens in the principles of "staunchness, courage, faith in victory, a sense of collectivism," etc.²⁰⁸ It is only with this type of domestic solidarity and support that the Soviets feel capable of successfully engaging in nuclear war.

Under modern conditions such preparation has its own specific features and is carried out mainly on a moral-political, anti-nuclear and military basis. The preparation of the population from a moral-political and also from a psychological respect is especially important in nuclear warfare in which the population will be subjected to severe trials. These will be within the capabilities of only such people as have a boundless love for their country, possess high moral-political qualities, and are prepared to undergo²⁰⁹ any trials in order to achieve a victory over an aggressor.

The Soviet belief in its obligation to realistically prepare for nuclear warfare reiterates acceptance of the "necessity of its prevention



and the possibility of its being waged." Military readiness serves a multitude of traditional objectives, and is thus not in itself alarming. Calls for continuous economic preparations for war illustrate a degree of paranoia which may be rationalized on the basis of historical experience and the conditions under which modern warfare is likely to unfold. Advocacy of the psychological conditioning of the populace, however, reveals a sincere commitment to the perception that nuclear war is indeed possible. These three issues combine to disclose the seriousness with which the Soviet military regards the prospect of such conflict.

F. MILITARY SUPERIORITY

The quest for superiority of forces is a traditional and universal military objective, as ancient as the art of warfare itself. Qualitative and quantitative superiority in weapons and forces is viewed as essential to success in combat. This condition can be accomplished by either of two methods. The most obvious is to maintain a level of forces which exceeds that of one's opponent. The more difficult method involves the creation, through economy of force moves, and concentration of relatively superior forces pitted against an opponent at the decisive place and time with the objective of defeating him piecemeal. The latter approach finds more frequent expression in the annals of military history and can be applied to the full spectrum of military operations, from tactical to strategic.

In the Soviet view, the issue of superiority of forces is so fundamental as to constitute the "first law of war".

...The first law of war...states: the course and outcome of a war waged with an unlimited employment of all means of conflict are determined primarily by the correlation of strictly military forces available to the combatants at the beginning of the war, especially in nuclear weapons and means for their delivery.²¹⁰

This requirement for superiority is closely linked with the Soviet interpretation of the need to prepare for war and with the economic capabilities of the state. "A fundamental problem in the interrelationship of military doctrine and the economy is the creation and maintenance of military-technical superiority over the probable enemy."²¹¹ Ascendancy in weapons of mass destruction is viewed as the primary solution to this problem. "Thus superiority in nuclear-rocket weapons is the decisive factor in military-technical superiority."²¹² Whereas in the past, quantitative superiority over an opponent in war was viewed as essential for success, the Soviets now maintain that the "revolution in military affairs" has introduced the requirement for qualitative preponderance as well.²¹³

The perpetual quest for military superiority comprises one of the basic responsibilities of the Soviet state. "Using the achievement of Soviet economics, sciences, and technology, the party and state are doing everything necessary to bring about our constant qualitative and quantitative military and technical superiority..."²¹⁴

The criteria for calculating strategic nuclear superiority involves consideration of relative throw weight capabilities, size of yield, and numbers of weapons, and includes the degree of vulnerability of the targeted country. The following assessment of the means to compute strategic superiority was presented in a 1968 edition of Voyennaya Mysl':



The most prescient military leaders in the United States consider, for example, that it is not only a question of the number of launching sites for intercontinental missiles and missiles of other classes, but also a question of the size of the payload which can be delivered by these missiles to a target, the quantity of the missiles themselves, and the degree of vulnerability of an enemy country.²¹⁵

Aside from the military desirability of superior strategic weapons, a degree of political utility is believed to emerge from ascendancy in nuclear weapons.

The achievement of superiority by the Soviet Union over the imperialist aggressors in the might of nuclear ammunition and the possibility of the inexorable and accurate delivery of them to the designated target forced the military and political leadership of the imperialist states to openly recognize the need to 'reassess values.'²¹⁶

Military superiority is thus viewed as a high priority objective which will endow the ability to successfully engage in war, if it should occur, and emerge victorious. It also releases the Soviet Union of the historical burden imposed as a result of the strategically inferior position she held vis-a-vis the U.S., and thus permits greater behavioral flexibility.

G. PHASES OF MODERN WAR

Soviet military thought identifies three key phases of war, linked in a progression, and terminating with the radical alteration of the pre-war military-political situation. Knowledge of these phases, and the ability to determine the proper time of transition from one stage to the next, are essential to victory in modern war. The first phase has been designated the "threat period" and is defined as one of "...direct preparation of a country and its armed forces for war, established by decision of the government in moments of an especially tense international situation."²¹⁷



The duration of this phase varies dependent upon the status of international relations, available means of combat, etc. In the Soviet view, the period preceding World War I involved lengthy preparations and extended from 1912 to June, 1914. The threatening phase of World War II was considerably shorter, having commenced in March, 1938.²¹⁸ This phase is believed to originate as a result of a variety of events occurring within the international arena to include, alterations in political relations among states, outbreak of local hostilities, implementation of civil defense procedures, increases in the level of military readiness, etc.²¹⁹

Two stages of the threat period have been identified. The first, termed the "concealed stage," encompasses the period during which a state implements secret preparations for war. The "open stage" begins once these preparations are discovered, while the state is attempting to complete readiness procedures. The duration of the open stage of the threat period is dependent upon the type of warfare contemplated. Longer periods are associated with conventional warfare. In nuclear war, the open stage is expected to be very short or non-existent.²²⁰

A variety of diplomatic, economic, political, and military indicators, each with varying degrees of subtlety, will become apparent to the alert observer to reveal the beginning of the threat period. Failure to detect this phase and react accordingly can have devastating consequences, especially in the event nuclear weapons are involved.

In order not to be caught by surprise and to make it possible to put into operation in an organized and timely manner the forces and means, operational and prudent leadership of the Armed Forces is especially required during the duration of the threatening period. A very deep evaluation of the developing situation and immediate reactions to measures and operations of the enemy will be necessary. The main thing here is not to be late or to exclude surprise and not



to give the enemy any advantage in developing the readiness of his armed forces.²²¹

The significance of the accurate determination of the various stages of the period of threat cannot be overemphasized. This determination is closely related to the Soviet objective of frustrating an enemy attack. Soviet military writing is replete with the desirability, indeed the absolute necessity, of thwarting an attack.²²² The only means of accomplishing this is to ascertain enemy intentions during the threat period, and deliver a nuclear strike to frustrate those intentions. "A most important task of the military leadership is prompt determination of the onset of this (threat) period and the taking of immediate effective steps to repulse a surprise enemy attack."²²³

Such doctrinal thought lends credence to the following strategic scenario. During the course of an international crisis situation, where tensions mount and cloud perceptions, a state inadvertently signals the onset of a period of threat. This signal is received and interpreted as evidence of impending strategic attack, and thus calls for execution of a preemptive strike.

The second period of modern warfare distinguished by Soviet strategists consists of its initial phases. Seizure of the strategic initiative is viewed as the decisive requirement of this period. War can commence as a result of the escalation of localized conflict or through direct employment of strategic nuclear forces. Implementation of the latter approach is viewed as a most effective means of acquiring the strategic initiative. "The most probable way of unleashing a world war, as they write about it in foreign countries, may be a sudden attack with strategic nuclear weapons against targets in the border zones and

in the interior of the country."²²⁴ Having acknowledged the most probable means of beginning a world war, the Soviets relate the early seizure of strategic initiative with the accomplishment of strategic objectives.

The most important moment, ensuring the successful conduct of a war, and rendering a decisive influence on the possibility of the timely augmentation of efforts, is seizing and maintaining the strategic initiative from the very beginning of the war...Now, when armies are armed with weapons with unprecedented destructive capabilities, possession of the strategic initiative can under certain conditions even predetermine the outcome of the war as a whole.²²⁵

The surprise use of nuclear weapons is recognized as an expedient approach to acquisition of this initiative. Failure to accomplish this at the onset of conflict may well lead to defeat. In World War II, it took the Soviets one and one-half years to wrest the initiative from Germany. The contemporary nature of modern warfare will not allow the luxury of time in which the Soviet Union can seize the initiative from an opponent.²²⁶ "From the nature of modern war it follows that the use of nuclear-rocket weapons as a decisive means of armed conflict makes it possible to achieve immediate strategic goals in a short time in a beginning period of the war."²²⁷

The final phase of war, in Soviet thought, is that which transpires subsequent to the initial period. Its existence and duration will in large measure be determined by the actions of the initial period. Victory in the beginning phase of war is viewed as a distinct possibility, if its conduct is managed properly.

Mass nuclear missile strikes at the armed forces of the opponent and at his key economic and political objectives can determine the victory of one side and the defeat of the other at the very beginning of the war. Therefore, a correct estimate of the elements of the supremacy over the opponent and the ability to use them before the opponent does, are the key to victory in such a war.²²⁸

Under certain conditions, war can develop into a protracted conflict, even after mass exchanges of nuclear weapons. This possibility necessitates the readiness of conventional forces to conclude hostilities during the subsequent period of war.

At the present time, no one can deny the possibility of a short lived war...However, it is quite obvious that depending on conditions of origin of the war, armed struggle to the finish will not be limited only to attacks with nuclear weapons. It²²⁹ may be dragged out and may require long and maximum effort...

H. THE ELEMENT OF SURPRISE

Passing reference has already been made to the Soviet concern with the element of surprise. This concern is of such magnitude as to warrant detailed examination of its treatment in military writings. The Soviets are indeed obsessed with the military implications of the surprise factor. As a universal and traditional principle of warfare, surprise plays a key role in any military operation, whether it be tactical or strategic. In the case of the Soviet Union, surprise assumes an even greater significance, owing in part to the xenophobic nature of its society, its historical experience, and its own perception of the nature and conduct of modern warfare. Soviet interest in this phenomenon develops from two basic needs. First, above all, they do not wish to be the recipient of surprise. Second, recognizing its decisiveness as a military means to strategic ends, they seek to be the purveyors of surprise.

The Soviets define surprise as a key principle of military art which will insure success in warfare. Surprise may be applied at the tactical, operational, or strategic echelon of military operations, and

...makes it possible to inflict heavy losses upon the enemy in short periods of time... Surprise is achieved in the following ways: by using various types and methods of combat; by misleading the enemy as to one's own intentions; by safeguarding the security of operational plans; by decisive action and skillful maneuver; by unexpected use of nuclear weapons; and ²³⁰by using means and methods with which the enemy is unfamiliar.

The goal of surprise military actions is to "dumbfound the enemy and catch him unawares when he is least prepared to parry an unexpected attack," and thus render total defeat with the minimal expenditure of friendly forces.²³¹

The increased significance of the surprise factor is viewed as a consequence of three basic characteristics of modern warfare. First, the temporal aspect of a future war raises its importance. "While several weeks or months were required in the past...for unleashing of a world war, in modern conditions, only minutes are needed to inflict a nuclear strike against the enemy."²³² Second, the devastation associated with weapons of mass destruction radically increases the consequences of surprising or being surprised. "In view of the immense destructive force of nuclear weapons...the launching of the first massed nuclear attack acquires decisive importance for achieving the objectives of war."²³³ Finally, skillful employment of surprise can do much to offset the advantage enjoyed as a result of superiority in military forces. Surprise is "a more important condition for achieving victory than overall superiority."²³⁴ Thus, these three conditions have elevated the primacy of the surprise factor to the level at which "preemption in launching a nuclear strike is considered to be the decisive condition for the attainment of superiority over him (the enemy) and the seizure and retention of the initiative."²³⁵

The first requirement which develops as a result of the influence of the surprise factor is never to allow oneself to be caught unawares. This is to be accomplished through a combination of procedures. The extensive reliance on intelligence is viewed as one means of preventing surprise. All intelligence assets are to be integrated in a common effort designed to disclose strategic enemy intentions.²³⁶ The political and military leadership are to be alert and responsive to situational events to preclude surprise.

...in a nuclear missile war an erroneous decision by political and military leaders and the inability to foresee the course of events are fraught with irreversible consequences. This is why under present-day ²³⁷ conditions the role of foresight has become much greater...

A high degree of combat readiness is viewed as another method of reducing the impact of surprise.²³⁸ Brezhnev summarized the Soviet resolution on this issue by observing that "we are taking into consideration the lessons of the past and are doing everything so that nobody catches us by surprise."²³⁹

The second task originating from the significance of surprise in modern warfare is to employ it to maximum Soviet advantage. The first condition for successful employment of this technique is detailed planning. "This means it is possible to count on the success of surprise actions only on condition of their prior planning, preparation, and timely implementation."²⁴⁰ Uniqueness of approach is another consideration in effective surprise. Inventive and bizarre techniques produce greater deception and are therefore more successful.

Surprise is incompatible with stereotype. Stereotype contradicts the very essence of surprise. If one has succeeded in deceiving the enemy once, then he will not allow himself to be

deceived a second time by the very same technique. Therefore, there is a continuous search²⁴¹ for newer techniques and methods for achieving surprise.

In a surprise attack, maximum use of available strategic weapons systems should be made to increase the level of shock effect and to accomplish the greatest amount of devastation. A combination of ICBM's, SLBM's, strategic bombers, and space weapons integrated into a combined strike is viewed as the best means of satisfying this requirement.²⁴²

The maintenance of strategic nuclear forces in constant readiness for a strike enables delivery of an attack without implementation of mobilization measures which would disclose strategic intentions.²⁴³ Another requisite of surprise involves the blinding of enemy intelligence collection means on the eve of war. This is to be accomplished simultaneously with the increase in the friendly means of intelligence collection and reconnaissance.

...take active measures to suppress and blind reconnaissance forces and means of the enemy by creating strong interference against radio and radio technical means. For this purpose, high altitude nuclear explosions can be carried out in the beginning and in the course of the war to destroy the system of control and communications and to suppress the anti-missile and anti-air defense radar system and the aircraft control systems.²⁴⁴

Deception is viewed as a key requirement of surprise and can be practiced in a variety of ways with the objective of using "...such methods of operations which do not produce the end result in complete form, but insure a high level of probability of achievement of surprise."²⁴⁵ The use of training maneuvers to cover deployment of forces or the fostering of localized wars to conceal creation of a crisis atmosphere to justify escalation to strategic nuclear strikes are both recognized means of deception in support of surprise.²⁴⁶ One interesting technique discussed in the pages of Voyennaya Mysl', albeit in the

context of an aggressor's use of the technique, involves the induced relaxation of international tensions preparatory to initiation of a surprise strategic attack. Thus a temporary relaxation of tension could be used to produce an illusionary thermidor which might yield a substantial advantage in the employment of surprise.

It must be noted, however, that an aggravation of the international situation by aggressive imperialist circles on the eve of the war is not obligatory. On the contrary, for the purpose of disinformation and deceiving public opinion, they might resort to a false softening of relations ²⁴⁷and, under cover of this maneuver, suddenly unleash a war.

Recognizing the impossibility of avoiding some retaliatory damage, even with skillful preemption, the Soviets feel it is necessary to implement damage limitation procedures prior to initiation of even a surprise attack. "Everybody knows that in modern conflict of combatants which are relatively equal in power (in number and especially in quality of weapons), an immediate retaliatory strike of immense destructive power is inevitable." It is therefore necessary to take measures to reduce one's vulnerability before launching the attack.²⁴⁸

Knowledge and employment of the element of surprise is, therefore, a key strategic principle in Soviet military thought. In military writings there is seldom a distinction drawn between the concepts of surprise, preemption, preventive attack, and the need to frustrate or thwart an enemy's attack on the Soviet Union.²⁴⁹ All relate to the necessity of avoiding the possibility of being surprised by employing this technique in an early and decisive manner. In this context, one should recall the importance allocated in Soviet military thought to the period of threat which precedes modern war.

I. TARGETING

The subject of strategic targeting in a nuclear age is one which has received extensive analysis in both the U.S. and the U.S.S.R. In Western thought, this analysis has resulted in the identification of two basic categories of targets: countervalue and counterforce. The former consist of value oriented aspects of society, and as such have little military utility. The latter designation concerns an opponent's military means of waging war, especially strategic means. The U.S. doctrine of deterrence is based primarily on countervalue targeting, and places emphasis on the ability to inflict an unacceptable level of damage on the Soviet civilian population and industry. Other aspects of U.S. doctrine provide some flexibility with which certain counterforce targets can be attacked, as necessary, but the ultimate thrust of U.S. strategic policy is directed toward countervalue targets. The U.S. approach is thus dependent on U.S. military doctrine, which holds as a fundamental premise that the threat of employment of weapons of mass destruction coupled with visions of the resulting devastation, will function to deter their use.

The Soviet analysis of targeting is also directed by their military doctrine which, as noted, consists of a realistic military strategy, not a theoretical calculation of how to prevent war. The Soviet approach to targeting represents a counterforce orientation. This, however, is quite different from the Western understanding of what constitutes a counterforce target. The U.S. view, for example, holds that such entities as ICBM launchers, SLBM bases and submarines, long-range bombers and their bases, command and control facilities, and military forces constitute counterforce targets. The Soviet version

includes these military targets, but also encompasses entities which in the West have been associated with the countervalue designation. The rationale behind this "expanded" approach refers to the Soviet understanding of the essence of war and the nature of strategic objectives. The strategic goal of any military operation, be it tactical or strategic, conventional or nuclear, is the total destruction of the enemy's current and potential ability to wage war. In the Soviet view, the capacity to wage war develops not only from accumulated military forces, but also from the means of political control of a state, the economic capabilities, and above all, from the will of the population to engage in modern war.

In a future war with the use of nuclear-missile weapons, the strikes will be inflicted simultaneously on both the armed forces and against administrative-political and military-industrial centers of the country, the destruction of which will disorganize state and military control, undermine the military-economic potential, deprive the enemy of the opportunity to conduct extended combat operations, and lead to his destruction...The entire territory of the combatant countries is drawn into the sphere of ²⁵⁰armed conflict regardless of their sizes and location on earth.

Another Voyennaya Mysl' article commented on the multifarious nature of Soviet targeting by maintaining that the "power of nuclear weapons will be concentrated above all toward destruction of the military-economic potential, defeat of the groupings of armed forces, and undermining the morale of the population."²⁵¹ Soviet strategic doctrine thus calls for the destruction of the enemy's actual and potential ability to offer resistance and as a result takes on greater significance than the mere targeting of military forces.

Strategic nuclear weapons are assigned the primary role in Soviet targeting. The capabilities of these weapons enable the simultaneous

destruction of military forces and other elements relating to the ability to wage war without regard to location. It should be recalled that one feature of the revolution in military affairs which influences Soviet thinking is the elimination of a distinction between the front and the rear.

The emergence of nuclear missiles has revealed the material basis of the principle of simultaneous destruction of the enemy throughout the entire depth of his combat and operational deployment as well as the destruction of the most important military-economic targets deep in the rear of the belligerent states.²⁵²

The Soviets utilize a set of fundamental principles in selecting strategic targets. First is the degree of risk the target affords the attacker. High threat targets are to be identified and assigned priority for servicing.

...the indicated objectives should be examined and classified by the degree of their danger for the attacker. Thus, the launch position from which 10 minutes ago a strategic rocket was launched, does not represent a threat in the immediate period of time, since the firing of another missile requires a certain period of time. An airfield of strategic aircraft with bombers which have just landed is...less dangerous than a similar airfield with aircraft ready to take off which are carrying nuclear arms.²⁵³

The second basic tenet concerns the vulnerability of a target and addresses the maximum utilization of available weapons systems. The economical employment of nuclear weapons against targets best suited for their use is a necessary planning condition.

Objectives of a deep attack can vary also in the degree of vulnerability. For example, airfields, formations of reserves... other stationary objects and also junctions of roads and various industrial plants are easily vulnerable...control posts in hard shelters, and submarines and surface ships at sea are not vulnerable objectives.²⁵⁴

An additional consideration in selecting targets is the necessity of coordinating the entire targeting effort with the objective of attaining the most favorable balance of forces once the attack has been accomplished.

The most important factor influencing the correlation of forces is the optimal distribution of nuclear means in terms of enemy targets. It should be acknowledged that the best variant of a nuclear strike is the one which insures the greatest correlation of forces in our favor after the strike is delivered.²⁵⁵

Other factors involved in target calculations include the quantity of weapons available, the size of yield, vulnerability to defensive measures at time of launch, during flight, and at arrival on target, and the total plan of the strategic operation.²⁵⁶

These principles have led to classification by precedence of targets selected for strategic strikes. The first priority is the strategic nuclear forces of the enemy, and include ICBM's, SLBM's, strategic air bases, strategic navy bases, nuclear stores, and related command and control facilities.²⁵⁷ In essence, targets of the highest priority consist of those defined as counterforce in Western doctrine.

A delay in destruction of (the enemy's) means of nuclear attack will permit the enemy to launch the nuclear strikes first and may lead to heavy losses and even to defeat of the offensive. The 'accumulation' of such targets as nuclear weapons and waiting with the intention of²⁵⁸ destroying them subsequently is now absolutely inadmissible.

The second priority is allocated theater level aviation and nuclear forces, to include their reserves and related control facilities. This is followed by attacks on military ground forces, reserves, and logistical support elements. A fourth priority is assigned an enemy's air defense capabilities. The final grouping includes important military-industrial objectives, administrative and political centers, transportation systems, ports, and centers of state administration. This sequence of targeting is offered only as a guide, and may be altered dependent upon situational events.²⁵⁹ For example, strategic forces and economic and political centers may require simultaneous targeting to produce the desired results.

As has been noted, the servicing of economic targets is considered an important strategic objective which will facilitate the enemy's total destruction. Only those industrial facilities which can support a war effort are included in this category.

The growing significance of the economic factor on the course and outcome of a possible world war have resulted in the fact that the atomic, rocket, aviation, tank, and artillery plants, and all radioelectronics, chemical, metallurgical, machine building, and electric power enterprises have become strategic targets, which at the very beginning of military operations will be subjected to nuclear strikes.²⁶⁰

The massive destruction of civilian economic centers, viewed as a necessary element of countervalue strikes in the West, finds no expression in Soviet strategy. Such an approach would result in the unnecessary expenditure of strategic weapons. The Soviets are concerned only with those economic assets which contribute to the enemy's ability to wage war. Moreover, they perceive the possibility of employing enemy economic capabilities in support of their war effort and as an aid to recovery on conclusion of hostilities.

The objective is not to turn the large economic and industrial regions into a heap of ruins (although great destruction apparently is unavoidable), but to deliver strikes which will destroy strategic combat means, paralyze enemy military production, making it incapable of satisfying the priority needs of the front and rear areas, and sharply reduce the enemy capability to conduct strikes.²⁶¹

Intricate planning is considered essential in target selection and makes extensive use of available intelligence and reconnaissance means prior to the outbreak of war. "Before the beginning of military operations, the main task of air and space intelligence is to...ascertain the priority enemy targets which must be subjected to nuclear attacks."²⁶² Surveillance is to be continued during the course of

operations to reconfirm target locations, evaluate the effectiveness of previous strikes, and "to avoid inflicting an attack on an empty place."²⁶³

The Soviet approach to strategic targeting represents a thorough analysis of the requirements necessary for the total military defeat of the enemy. It does not target the civilian population. To do so, in the Soviet view, would be counterproductive, and would result in a bolstering of the will to resist. Attacking the enemy's civilian population is of no military importance. Failure of the allied air offensive against Germany in World War II to demoralize the German people and produce an early conclusion of the hostilities, is frequently cited as evidence of the futility of targeting an opponent's population.²⁶⁴ A more recent example can be found in the U.S. bombing of North Vietnam which served to enhance North Vietnamese morale.

J. ESCALATION

An interesting distinction between Soviet and American doctrinal thought concerns the understanding of the "theory of escalation." This theory plays an integral role in U.S. strategic doctrine. It serves to link the application of selected military options in a theoretical progression through a series of thresholds which may terminate with the mass use of strategic nuclear forces employed in an assured destruction role. The theory holds that the level of conflict can be limited to thresholds below the "ultimate" use of nuclear weapons. For example, U.S. doctrine maintains that it is possible to escalate to use of tactical nuclear weapons on the battlefield without risking immediate escalation to higher thresholds. Several conditions are necessary for the

operation of this theory. Each opponent must possess similar weapons systems, each must have comparable targets, and each must recognize the existence of different degrees of conflict, i.e., thresholds.

The Soviet view of escalation radically departs from the U.S. perception on the latter condition. They maintain that any resort to use of nuclear weapons will inevitably lead to escalation to strategic use of such weapons. Adherence to this interpretation may be motivated by two considerations. First, it reflects the Soviet belief that war is driven by objective laws which operate independent of man's volition.²⁶⁵ Second, the decisiveness of a future world war would dictate the employment of any means necessary to secure victory.

In the modern era, the danger of a local war erupting into a decisive world war is one view of escalation held by the Soviets. "The danger of nuclear war is now connected...also with the possibility that a local conflict will develop into a world war."²⁶⁶ Another comment on the danger of conflict mushrooming indicates that "Soviet military science considers that such wars (local, limited, liberation) may escalate into a world nuclear war, particularly in those conditions where the imperialists employ 'tactical' atomic weapons. In this event they will provoke a crushing answering nuclear rocket strike."²⁶⁷

Soviet military thought holds that nuclear weapons, regardless of size, are weapons of mass destruction. Once these weapons have been introduced, irrespective of the method or scale of the strike, the level of conflict will inevitably escalate to wider use of other weapons of mass destruction.

The conception of 'limited' use of nuclear weapons constitutes deception of the people's masses...A nuclear fire which has begun cannot be localized by anybody. It will envelop without fail the entire world, and capitalism as a socio-economic structure will perish once and for all in its fire.²⁶⁸

Soviet military writings frequently analyze and comment on American interpretations of escalation theory. The consistent conclusion maintains that a belief in the limitation of the means of conflict in a world war is an abstract departure from reality, which lacks any military sensibility.²⁶⁹ The Soviets observe that the principles of escalation espoused in U.S. doctrine

...are based on one rather disputable position, i.e., that in the course of any controllable war there may be achieved a certain tacit agreement between the combatants as to possible courses of action, aims which can be pursued, weapons which can be used, and even methods of armed conflict. With the existence of multi-megaton nuclear and thermonuclear weapons and perfected means of delivering them to targets, along with the state of extreme nervous tension during modern armed conflict, especially conflict between nuclear powers, such a 'return to the knightly tournament' is either a fantasy, or an attempt to mask the true state of affairs.²⁷⁰

K. VICTORY

The notion of victory in modern warfare finds frequent expression in Soviet military writings. That they place credence in the possibility of its accomplishment in a world war is attested to by the application of serious military procedures to plan and prepare for its conduct. Any admission that victory could not be secured in a nuclear war would undermine the basic foundation of Soviet military doctrine. The a priori objective of any military operation is to inflict defeat upon the enemy and thus emerge as the victor. The essence of Soviet doctrine is simply the strategy of war and thus necessitates advocacy of the principle of victory. Soviet military thought maintains that

there "is profound error and harm in the disorienting claims of bourgeois ideologues that there will be no victor in a thermonuclear world war."²⁷¹

Significant attention is paid the inevitability of Soviet victory in a world war. True to fashion, Marxist-Leninist ideology is used to provide plausible explanation and justification. The philosophical tenet of the ultimate triumph of socialism over capitalistic imperialism is frequently rolled out to buttress the predestined nature of Soviet victory.

Soviet military doctrine defines the character of modern war as the decisive armed conflict of two opposing social systems. If such a war is unleashed, then with all its destructive force, it will end in the destruction of imperialism, since there are all the necessary economic, political, moral, and military prerequisites for this. 'The monopolistic bourgeoisie' the CPSU program states, 'cannot defend itself from the unalterable course of historical development, even by nuclear weapons.'²⁷²

The costs of achieving victory in a world war are recognized as being exorbitant, but this differs little from the content of the Russian historical experience. In commenting on the massive destruction associated with nuclear conflict, one officer advised: "We have no doubt of its outcome: capitalism will be buried, but at what a price!"²⁷³ Another author cautioned his readers:

We must always remember that, if a world nuclear missile war is unleashed by the imperialists, hundreds of millions of people will be dragged into its orbit. Victory in such a war will be attained not only by the operations of massive armed forces, but also by the vigorous activities of the people as a whole.²⁷⁴

Soviet military thought embraces the notion of victory in nuclear warfare. To an extent, this belief is dictated by their doctrine. It also develops from the basic objective of any military operation. The

essential question in the Soviet mind is not "can one win?", but "how does one win?" That the nature of victory may be entirely pyrrhic is of little import.

L. DAMAGE LIMITATION

As is evidenced by the offensive nature of Soviet doctrine analyzed thus far, the limitation of the level of damage inflicted on the Soviet Union is viewed as a necessary requirement. Damage limitation, as a strategic concept, defines any attempt to curtail damage inflicted by an opponent through employment of options designed to reduce the effectiveness of his forces. This can be achieved by offensive measures designed to destroy the opponent's capability to inflict damage, by defensive measures employed to deny him access to his objectives, or by passive measures designed to limit the effects of his attack. Measures reducing the vulnerability of one's strategic military forces, population, and industry achieve defensive damage limitation, while measures exploiting the vulnerability of an opponent's military forces are offensive measures to limit damage.

The Soviet view of war, of the requirement for its preparation, of the strategic importance of the element of surprise, and of targeting the enemy's ability to inflict damage--all serve to satisfy the conditions of offensive damage limitation. The needs of adequate defensive measures to reduce vulnerability are met first by combining both offensive and defensive techniques.

It is entirely obvious that by striking at the strategic nuclear attack facilities of the enemy, they (nuclear missiles) carry out an exceptionally important assignment of a defensive nature, decisively weakening the power of the nuclear enemy strike and creating conditions for successful operations for the antiair and antimissile defense troops. ²⁷⁵

The Soviets feel that active defensive tasks, i.e., destruction of incoming strategic weapons, can be more easily accomplished if the volume of enemy weapons can be reduced prior to launch. The effectiveness of those which are launched will be curtailed by air defense forces.²⁷⁶

Although Soviet doctrine is based on the primacy of the offensive, defensive requirements are understood to have assumed greater importance as a result of the revolution in military affairs. "It should be said that defense against enemy nuclear strikes is, undoubtedly, of major strategic significance."²⁷⁷ Passive measures are also considered necessary. The possibility of a retaliatory strike of some magnitude being visited on Soviet Russia becomes inevitable once war begins. This means that measures to reduce vulnerability must be implemented before launching an attack.²⁷⁸

Obviously there will be a mass evacuation of the population from densely populated cities, major industrial and administrative centers. It will begin at the moment a threat arises, when it becomes obvious²⁷⁹ to the political leaders that war is unlikely to be avoided.

Energetic civil defense procedures, coupled with the geographic advantage enjoyed by the U.S.S.R., facilitate vulnerability reduction.

In a nuclear missile war, countries with extensive territory will turn out to be in the most favorable situation. They will be able to distribute their population, industry and armed forces in the proper manner, to have a deeply echeloned air defense, to disperse strategic weapons and to maneuver reserves. Such prospects are enjoyed primarily by the Soviet Union.²⁸⁰

In summary, the strategic nuclear doctrine of the Soviet Union lacks abstract theoretical foundation, and relies instead on the application of military procedures as a solution to military problems. A future world war is viewed as the ultimate manifestation of conflict between

opposing class systems caused not by a dispute over the issues which have historically lead to war, but by the decisive clash of vital interests which will culminate with the total destruction of one of the protagonists. Its totality dictates that all means be taken to avoid its outbreak, but in the event these should fail, one must be ready to wage war with the objective of realizing the rapid and total defeat of the opponent. From the latter requirement emerges the substance of Soviet nuclear strategy, which consists of a series of conditions and techniques that will enable victory in such decisive conflict. Prerequisites include the thorough preparation of the military, economic, and civilian elements of Soviet society; and the accumulation of quantitative and qualitative superiority in the tools of warfare. Knowledge of the objective laws of war and the ability to manipulate conditions under which they unfold will yield significant advantage. It is essential to foresee the onset of the period of threat preceding hostilities and to take measures during its initial stage to seize and maintain the strategic initiative. The skillful application of the element of surprise in conjunction with the early and decisive use of weapons of mass destruction will serve this objective. Striking the entire spectrum of targets which contribute to the enemy's ability to wage war is the only feasible means of securing his defeat. To limit the amount of damage received, and thereby facilitate post-war recovery, it is essential to maintain and implement procedures which reduce vulnerability prior to initiation of the strategic offensive. Only under these conditions can victory be realized in a future world war.

A brief comparison of American and Soviet strategic doctrine may serve to further clarify the essential nature of the latter. Figure seven identifies key contrasts between the two. American strategic doctrine operates in the belief that nuclear war can be avoided by the mere threat of its outbreak. It maintains that international stability results from an essential equivalence in the balance of strategic capabilities among superpowers. Should this stability deteriorate, for whatever reason, U.S. doctrine offers limited strategic alternatives, all of which culminate with massive blind use of nuclear weapons. In the event deterrence fails, doctrine calls for implementation of a relatively shortsighted and brief sequence of strategic events at the outset of war. At this point, doctrine ceases to function. It is not concerned with what occurs once a world war begins.

In contrast, Soviet strategic doctrine begins to take form and offer realistic guidance at precisely this point. It is fundamentally concerned with what transpires should stability deteriorate into open warfare. The militaristic nature of Soviet doctrine not only offers a means of coping with such an eventuality, but also functions to deter the possibility of its occurrence. The latter condition follows from the premise that the best means of maintaining security in a nuclear age is to be able to fight and win a nuclear war.

UNITED STATES

SOVIET UNION

- | | |
|---|--|
| 1. Nuclear War Unthinkable. | 1. Nuclear war must be avoided but may occur. |
| 2. Strategic thought shaped by civilian elite. | 2. Strategic thought shaped by military elite. |
| 3. Underlying doctrinal principle is mutual deterrence through assured destruction. | 3. Underlying doctrinal principle is war fighting - damage limiting concept. |
| 4. Strategic forces maintained at levels believed sufficient to deter war. | 4. Strategic forces developed to levels necessary to wage war. |
| 5. Second strike orientation. | 5. First strike orientation. |
| 6. High alert rate on all strategic forces. | 6. Low alert rate on mobile strategic forces. |
| 7. Ultimately targets civilian population and industry. | 7. Targets military capability. |
| 8. Accepts vulnerability. | 8. Eschews vulnerability. |
| 9. Rejects notion of victory in nuclear war. | 9. Proceeds from belief that victory in nuclear war is possible. |
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FIGURE 7: Key Contrasts in Strategic Doctrine

V. CONCLUSION

It should now be possible to return to the fundamental issues briefly outlined in the introduction as underlying the debate on the capabilities and intentions of the Soviet Union. Are the interests of the Soviet Union sufficiently convergent with those of the United States as to constitute a foundation upon which greater stability can be built? To what end are developments in the strategic forces of the Soviet Union directed? What does Soviet thinking on nuclear war portend for international security and the endurance of peace? From the U.S. perspective, the initial response to each of these questions is not overly optimistic.

On the issue of commonality, one may conclude that while the generic interests and objectives valued by the Soviet Union are in large measure coincident with those of the United States, the means of attaining those objectives are dissimilar. The existence of common interests in survival, prosperity, prestige, etc., cannot be disputed. The divergence, however, stems from a lack of "shared interest" in mutual cooperation toward simultaneous achievement of these goals. The Soviets view their relationship with others as a zero-sum game, played not in the spirit of cooperation, but with a competitive zeal designed to further Soviet interests at the expense of the opposition. This contestant mentality derives from the conditioning influences of the Soviet/Russian experience.

The importance of recognizing the fact that the Soviet perception of the world differs fundamentally from that of the United States cannot

be exaggerated. These contrasting perspectives result in different behavioral approaches to the resolution of common problems. This divergence is frequently interpreted as evidence of overt antagonism and hostility, and thus serves to heighten mistrust and fear of Soviet motives. Failure to take notice of the dissimilarity of perceptions, and to apply it in evaluating Soviet behavior is to discount the possibility of understanding and influencing that behavior. Consider, for example, the analyst who witnesses a major buildup in Soviet strategic forces, and interprets that behavior in terms of his own "deterrent oriented" understanding of strategic matters. He cannot rationalize growth in Soviet forces because in his assessment, the pre-growth level of forces was adequate to cope with what he felt strategic forces should do -- deter war. Lacking a comprehension of Soviet perceptions or of the motives which necessitated such a buildup, the analyst will probably select an "action-reaction" pattern to explain increases in Soviet strategic power. He might then recommend unilateral restraint in the expectation that such behavior would be emulated, or he might counsel for negotiated limitation to moderate growth. In each case, however, the recommendation speaks to the symptoms of the problem, not its cause. The sources of Soviet conduct lie much deeper and are much more complex than that which can be rationalized by "action-reaction". Each of the three approaches enumerated will be ineffectual in altering the determinates which condition Soviet behavior. At best, some combination of these may influence the means with which these determinants are given expression. In each case the analyst has failed to consider the influence of the Soviet experience on the exercise of Soviet policy. He has placed a reflective screen between himself and the problem, and is thus

unable to understand Soviet behavior. If he can withdraw that screen by accepting the proposition that Soviet activity is driven by a set of influences which are fundamentally alien to his experience, he will be in a better position to contend with it.

Some of the factors in this not-so-hypothetical example include a penchant for confronting situations perceived as threatening with a military response; a rejection of any reliance on a cooperative understanding as a fundamental means of preserving security; a historic desire to escape the stigma of inferiority and demonstrate preeminence of the Soviet style; etc. These are but a few of the factors which condition the Soviet approach to achieving the interests and objectives which on the surface, may appear common to both the U.S. and the U.S.S.R.

Review of a few examples might serve to clarify the distinction between approaches to strategic issues. The Soviet position on the subject of verification in SALT is one which has long puzzled some U.S. observers. If an agreement limiting strategic weapons can be reached, they ask, what possible objection could be made to mutual on-site inspection to verify compliance? The Soviet rejection of on-site inspection must be viewed in light of an addiction to secrecy which again reflects differing perceptions conditioned by differing influences. The Soviet Union has always demonstrated extreme sensitivity about revealing matters connected in any way with its military capabilities. The issue of encrypted telemetry further illustrates this point. Under provisions of SALT I, both signatories agreed that neither would interfere with the other's "National Technical Means" of verification. The U.S. was alarmed when it became evident that the Soviet Union was concealing, through encryption, telemetry data associated with testing of the SS-18

ICBM. Following protests, it was announced that a joint agreement had been reached which stipulated that the Soviet Union would not encode missile test data that would preclude U.S. verification of SALT. The implication is obvious. The Soviets will continue to encrypt data which in their estimation does not relate to verification.

This commitment to secrecy, a trait clearly evident in the Soviet experience, functions to impede development of an attitude of mutual cooperation and trust. The question then becomes one of intent -- is this obsession with the taciturn merely a reflection of the Soviet style, or does it conceal a deception designed to secure Soviet advantage? The answer is also to be found in the Soviet experience. Cooperation which restricts the unilateral furtherance of Soviet interests is viewed as an undesirable tactic. Any means of enhancing the Soviet position, consistent with prudent risk - gain calculations, are perceived as viable and legitimate, regardless of the circumstances under which they are practiced.

Another example of divergent interests and approaches unfolding in the context of SALT involves the story of the "heavy missile" controversy. Article II of the SALT I Interim Agreement binds each party not to convert land based launchers for "light" or pre-1964 ICBM's into launchers for "heavy" newer ICBM's. This presented an obstacle to Soviet deployment of a new missile which was then nearing the testing phase of its development. The obvious solution, for Soviet negotiators, was not to reach agreement on the definition of a "heavy" missile. Finally, in desperation, the U.S. issued the following unilateral statement concurrent with the signing of the treaty.

The U.S. delegation regrets that the Soviet delegation has not been willing to agree on a common definition of a heavy missile. Under these circumstances, the U.S. delegation believes it necessary to state the following: The United States would consider any ICBM having a volume significantly greater than the largest light ICBM now operational on either side to be a heavy ICBM. The U.S. proceeds on the premise that the Soviet side will give due account to this consideration.²⁸²

In April 1973 the Soviet Union began testing, and later deployed the SS-19 -- a weapon some 40 percent larger in volume than the largest "light" ICBM operational in May 1972. While this is clearly in violation of the U.S. definition of a "heavy" missile, it is important to note that it does not represent a violation of the letter of the treaty. No consensus was reached on the definition of "heavy", and therefore the Soviet Union could deploy larger systems without risking U.S. protest. The U.S., however, was disturbed by what it believed was a violation of the spirit of the agreement. It should become apparent that the Soviet Union is not as concerned with the spiritual implications of an accord. This, and related examples, suggests that the Soviets do not acknowledge a fundamental inconsistency between pursuit of the SALT process and pursuit of unilateral strategic advantage. The latter objective appears to predominate in the formulation of Soviet policy.

Returning now to the central question, one may conclude that the interests of the Soviet Union, and the means selected in pursuit of those interests, are conditioned by an experience peculiar to Soviet Russia. Mr. Warnke's assertion that both the U.S. and the U.S.S.R. share a common interest in survival is correct. The lack, however, of a common (shared) experience upon which mutual cooperation can be built complicates accommodation. Additionally, each system pursues

goals which are in themselves incompatible. The United States, a status-quo power, seeks to preserve the current situation which is by and large favorable to its interests. The Soviet Union, a revolutionary entity, strives to alter the existing balance to achieve a more favorable position. It is within these parameters that events unfold.

As to the second fundamental issue, one may surmise that developments in the strategic nuclear forces of the Soviet Union are designed to secure a position of dominance from which Soviet influence can be exercised with relative impunity. This thrust beyond the bounds of parity is driven by two basic considerations. The first is closely related to the Soviet perception as formed by historical experience, and involves escaping the onus of strategic subordination. A related motive is the desirability of turning the tables, as it were, and occupying a position from which opponent behavior can be commanded. The second impetus for strategic dominance is a mere military consideration evolving out of Soviet doctrine.

Historically, the Soviet Union has suffered from an inability to match the accomplishments of the West in most fields of endeavor. Soviet Russia has consistently demonstrated comparative weaknesses in the areas of agriculture, technology, social prosperity, etc. Mindful of this, it has traditionally sought to demonstrate its greatness through elaborate displays while working to overcome its deficiencies. Soviet obsession with the concept of mass serves each of these needs. Physical greatness impresses the observer and compensates for qualitative shortcomings, especially in military matters. In World War II, for example, the mass of the Soviet military effort was the most significant determinate of victory. Once mobilized and given momentum, this

mass literally rolled Westward into Berlin. The contemporary Soviet order of battle illustrates the continuing influence of this "mass mentality".

The record clearly indicates a Soviet commitment to achieving strategic superiority. The magnitude of effort allocated this objective can only be described as awesome. One comparative measure places the military buildup in perspective. The Soviet defense effort has grown at a rate which equaled that of the United States circa 1971, and now exceeds it by as much as 25 to 45 percent.²⁸³

Most disturbing of all, the Soviets have undertaken a long-term military buildup that still continues after more than 15 years. What lies behind this buildup is a subject for debate. There can be no doubt, however, about the fact of the buildup itself...The seriousness with which the Soviets have undertaken -- and give every sign of continuing -- this effort is as impressive as its magnitude.²⁸⁴

It is not surprising that the Soviet Union has embarked on a program of this dimension. Failure to have done so would be tantamount to accepting permanent strategic inferiority -- a posture to be avoided at all costs by any superpower. To expect that the Soviet Union would be content with anything less than equality, or fail to see the utility of superiority, would be the height of political naivete. Doubtless the lessons associated with Berlin, Korea, and Cuba have not gone unheeded. Likewise, the lessons of Africa and the Middle East are equally instructive in the benefits of sufficient strategic power. An interesting subject for speculation concerns the nature of the lessons to be learned under conditions of Soviet superiority.

Soviet military doctrine calls for superiority of forces, both tactical and strategic, as a precondition to victory. In this regard, it is helpful to recall that Soviet doctrine posits superiority of

forces, especially nuclear, as the first law of warfare. With this in mind, the growth rate of the nuclear arsenal fits neatly into the overall pattern of Soviet strategic thought.

In the West, a strategic superiority is frequently viewed as an undesirable or unattainable relationship among superpowers. Henry Kissinger summarized this popular conviction in a celebrated statement issued in Moscow in July 1974. "What in the name of God is strategic superiority? What is the significance of it politically, militarily, operationally, at these levels of numbers? What do you do with it?"²⁸⁵ This thinking is shaped in part by the erosion of the strategic supremacy of the United States. During the period in which the U.S. held a monopoly on nuclear weapons, and later when it controlled a clear preponderance of strategic power, definite political, military, and operational significance was attached. Superiority was perceived as an aid in the control of the Soviet Union. Now that this relationship has been altered, superiority is condemned as a destabilizing influence. This line of reasoning appears to advocate a condition when it gives one advantage, and denounce that same condition when it works to one's disadvantage. The Soviet Union does not share the view that strategic superiority is an undesirable, unattainable, or destabilizing condition. On the contrary, it has been a long sought after objective which is fast approaching. The Soviet quest for this status is driven by a historic obsession to escape inferiority, a belief in the political utility of strategic power, and a military realization that superiority is essential to survival in the event of war.

The third and final issue of the grand debate concerns the Soviet view of nuclear war. On this count, one may credit Soviet military thought with an amazingly thorough and realistic approach to the problem of strategy in a nuclear age. The doctrine is self-reliant, rational, and sound. Capitalizing on key principles of surprise, early seizure of the strategic initiative, and decisive use of nuclear weapons, it provides a viable means of securing Soviet objectives in the event of war. It can also support the avoidance of war by providing an ability to wage it, and possibly win. In this sense it can deter an opponent from resort to nuclear contest by virtue of the threat of "losing". The Soviet approach to "deterrence" (war avoidance) posits a loser-winner relationship, and must be distinguished from the Western notion of deterrence which is based on a loser-loser outcome. Where Western thought concentrates on mutual avoidance cooperation, Soviet thinking, being more self-dependent, focuses on enforced avoidance. Perhaps the phrase "coercive deterrence" describes the essence of Soviet strategic doctrine. To paraphrase an old adage: the most secure defense can best be maintained with a good offensive orientation.

Soviet doctrine embodies a philosophical rejection of mutual deterrence through assured destruction. This is not at all surprising when viewed in the context of the Soviet weltanschauung. Mutual deterrence equates with mutual cooperation which, in turn, translates into mutual vulnerability. All are heavily dependent upon mutual trust, which will inevitably be shaken by mutual fear of opponent intentions.

Georgi Arbatov, Director of the Institute of USA and Canada, summarized the Soviet aversion to this theoretical concert as follows. "Of

course one cannot defend the concept of deterrence in itself--this concept of 'peace founded on fear' which would in all circumstances be an unstable and bad peace."²⁸⁶ The Soviet alternative is a concept of peace founded on strategic power. The accompanying doctrine thus assumes a war waging--damage limiting--war winning cast.

This offensive militaristic approach to the problem of strategic warfare frequently alarms the Western observer. In defense, he tends to dismiss the doctrine as a bluff, or to refute it on grounds that it is irrational or primitive. Such thinking is perilous. Soviet doctrine should be accepted for what it says. When facing an opponent over an issue as vital as survival, is it not more prudent to take him at his word, given credible evidence as to his sincerity, than to chance the future to some speculative hope that his statements lack commitment?

In the final analysis, the strategic nuclear doctrine of the Soviet Union is a policy formulated by that segment of society charged with the responsibility of insuring the security of the state. Hopefully, one can acknowledge a separation between the political decision maker and the military strategist. The real danger lies in the possibility that someday the decision maker might feel the need to turn to his military counterpart with the request that the doctrine be implemented.

What are the implications of this analysis for U.S. national security? First, recognizing that the Soviet Union approaches issues from a different orientation conditioned by divergent interests and experiences, the U.S. should acknowledge the lack of a consensus on which a mutual, harmonious, and cooperative marriage of interests can be

built -- at least for the foreseeable future. It should reexamine its policy in light of the competitive nature of the relationship, bolster its will, and rise to the challenges issued with a degree of resolve that will communicate in terms comprehensible to the Soviet Union. It should avoid any unilateral restraint and accommodation because this type of behavior is interpreted by the Soviet Union not as an invitation to cooperation, but as an opportunity which must be exploited.

The SALT process should be encouraged for two reasons. First, it permits a strategic dialogue which aids in the relaxation of tension, and promotes common understanding. Second, it offers a prospect for moderating the growth of strategic forces if substantive and equitable agreements can be reached. SALT is not a panacea. It is instead a means with which only the symptoms of a complex problem can be treated. When the spirit of the limitation process is violated, it is incumbent upon the other partner to quicken the pace so as not to yield strategic advantage. Meaningful limitations can be achieved only when both parties recognize the futility of acquiring the upper hand. Unfortunately, the history of SALT does not teach this lesson. The Soviet Union has exercised all conceivable options under the guise of SALT in overt pursuit of strategic advantage. Failure of the U.S. to implement programs which deny Soviet ascendancy merely reinforces Moscow's quest for superiority. The contents of SALT II do not appear to remedy this situation.

One disquieting feature of the SALT II treaty is the growth potential it allows the Soviet arsenal. Despite the apparent "cap" of 2250 strategic delivery systems (2400 through 1981), the agreement allows for almost exponential growth of Soviet warheads, significant increases

in megatonnage, and further refinements in technological quality. There is little doubt that the Soviet Union will continue its pattern of building its forces at least to the limits of the treaty. The prospect that the United States will do likewise, if challenged, is not as certain, whether for lack of will or of funds. This could lead to a situation in the 1980's in which the Soviet Union holds undisputed strategic superiority.

Finally, the U.S. should reexamine its strategic doctrine with the objective of further reducing emphasis on the concept of "mutual deterrence" as a key doctrinal principle. While such an approach may have offered a degree of security in the 1950's and 1960's, its utility in an era characterized by increasing Soviet war waging and damage limiting capabilities is diminished. The U.S. would be wise to take heed of the Soviet observation that the prospect of nuclear war has two dimensions: the necessity of its prevention, and the possibility of its being waged.

FOOTNOTES

¹Paul Warnke, "Strengthening United States Security Through SALT," Washington: US Arms Control and Disarmament Agency, 17 Oct 1978), p. 10. An interesting assessment of Mr. Warnke's philosophical view of the Soviet Union with regard to SALT was presented in a Jan 1979 article in TIME magazine. "Warnke has approached what he regards as a moment of truth. Though the Soviets remain unruly and difficult world citizens, Warnke believes that they are bruised and lonely who fear nuclear war, who in their singular way are searching for their place in the family of man." Hugh Sidey, "On Trusting the Soviets," TIME, 29 Jan 1979, p. 17.

²Committee on the Present Danger, Is America Becoming Number 2?, (Washington: Committee on the Present Danger, 5 Oct 1978), p. 1.

³Warnke, p. 7.

⁴Ibid., p. 13.

⁵Eugene V. Rostow, "The Case Against SALT II," Commentary, Vol 67, No 2 (Feb 1979), pp. 24-25.

⁶_____, "SALT II - A Soft Bargain, a Hard Sell," paper delivered before the Conference on US Security and the Soviet Challenge, Hartford Conn., 25 Jul 1978, pp. 15-19.

⁷Committee on the Present Danger, p. 42. (emphasis added).

⁸Robert L. Arnett, "Soviet Military Doctrine," Arms Control Today, Vol 8, No 9, (Oct 1978), p. 1.

⁹Editor, "The Real Paul Warnke," an interview, The New Republic, 26 Mar 1977, p. 23.

¹⁰Richard Pipes, "Why the Soviet Union Thinks It Could Fight and Win a Nuclear War," Commentary, Vol 64, No 1, (Jul 1977), p. 22.

¹¹Foy D. Kohler, Understanding the Russians, (New York: Harper and Row, 1970, pp. 1-2.

¹²Claims have been made that the Soviet Union contains 58% of the world's coal assets, 58.7% of its oil deposits, 41% of its iron ore, 25% of the world's timber land, 88% of its manganese, etc. John Paxton, ed, The Statesman's Year-Book 1977-1978, (New York: St. Martin's Press, 1977), p. 1414.

¹³R. Pipes, "Detente: Moscow's View, in R. Pipes, ed, Soviet Strategy in Europe, (New York: Crane Russak & Co., 1976), p. 9.

- ¹⁴Kohler, pp. 1-2.
- ¹⁵Pipes, p. 9.
- ¹⁶Vernon V. Aspaturian, Process and Power in Soviet Foreign Policy, (Boston: Little, Brown, and Co., 1971) p. 25.
- ¹⁷Pipes, p. 9.
- ¹⁸Aspaturian, p. 25.
- ¹⁹E. W. Egan, ed., Kings, Rulers, & Statesmen, (New York: Sterling Publishing Co., 1967), p. 403. See also Kohler, p. 6.
- ²⁰Kohler, pp. 6-9.
- ²¹Ibid.
- ²²Ibid.
- ²³Pipes, pp. 7-8.
- ²⁴Kohler, p. 6.
- ²⁵M. Schwartz, Foreign Policy of the U.S.S.R.: Domestic Factors, (Belmont Calif: Dickenson Publishing Co., 1975), p. 76.
- ²⁶Ronald Hingley, The Russian Mind, (London: The Bodley Head, 1978), p. 33.
- ²⁷Schwartz, p. 75.
- ²⁸Richard Pipes, "Why the Soviet Union Thinks it Could Fight and Win a Nuclear War," Commentary, July 1977, pp. 29, 33, 34.
- ²⁹Pipes, pp. 26-27.
- ³⁰Aleksandor Solzhenitsyn, Letter to the Soviet Leaders, (New York: Harper and Row, 1974), pp. 35, 36.
- ³¹Though this may be challenged on the basis of isolated historical examples, sufficient trends appear to exist within the American experience to buttress this generalization.
- ³²G. G. Kennan, The Marquis de Custine and His Russia in 1839, (Princeton: Princeton University Press, 1971), pp. 87-89.
- ³³Schwartz, p. 74.
- ³⁴Hingley, p. 135.
- ³⁵Ibid., p. 10.

³⁶Ibid., pp. 10, 11.

³⁷Ibid., pp. 11-14.

³⁸Ibid., pp. 36-38, 104.

³⁹The relative weight of this variable is, to a large extent, dependent upon the type of political leadership existent within the system. For example, in the case of a totalitarian dictator this variable will be of key importance in policy formulation. By contrast, its relative weight will diminish with the decentralization of leadership authority (U.S. system of "checks and balances", current collective leadership approach in the Soviet Union, etc.).

⁴⁰For an excellent account of the material well-being experienced by this elite see Hedrich Smith, The Russians, (New York: New York Times Book Co., 1976).

⁴¹Michael Tatu, "Decision Making in the U.S.S.R.," in R. Pipes, ed., Soviet Strategy in Europe, p. 47.

⁴²For an excellent example of an analysis of bureaucratic politics in the Soviet decision making process see Jiri Valenta, Soviet Invasion of Czechoslovakia, 1968: Anatomy of a Decision, (Baltimore: Johns Hopkins Press, 1979).

⁴³Tatu, p. 47.

⁴⁴Ibid., p. 48.

⁴⁵The degree of influence which ideology exerts on Soviet behavior is a highly debated question. While some maintain that its influence is minimal, others argue that it drives Soviet policy. The frequency with which it is invoked as a force in Soviet pronouncements would tend to indicate that it is an important factor, at least in justifying the policies of the Soviet Union. Marxist-Leninist ideology does offer one item which facilitates the Soviet political process - a strategy on the basis of which foreign policy behavior should be patterned. Stephen Gilbert, in Soviet Images of America, (New York: Crane Russak and Col, 1977), p. 8, maintains that ideology provides Soviet decision makers with four capabilities: 1) furnishes intellectual guidelines, 2) offers an analytical method for understanding situations, 3) justifies actions, and 4) determines national interests.

⁴⁶G. Shakhnazarov, "On the Problem of Correlation of Forces," Kommunist, February, 1974, p. 86.

⁴⁷M. J. Deane, "The Soviet Assessment of the Correlation of World Forces: Implications for American Foreign Policy," ORBIS, Vol. 20, No. 3 (Fall 76), p. 630.

⁴⁸Gilbert, pp. 142, 143.

⁴⁹For an excellent example of this sophistication see Jonathan Power's interview with Georgiy Arbatov, Director of Soviet Institute of the U.S. and Canada, contained in the London newspaper, The Observer, 12 November 1978, pp. 15-17. A central point contained in the interview was Arbatov's linkage of detente and SALT with the status of Sino-Western relations.

⁵⁰William E. Odom, "Who Controls Whom in Moscow," Foreign Policy, No. 19, (Summer 75), pp. 112, 113.

⁵¹Joseph S. Berliner, Franklyn D. Holzman, "The Soviet Economy: Domestic and International Issues," in W. Griffith, ed., The Soviet Empire: Expansion and Detente, (Lexington Books, 1976), pp. 85, 86.

⁵²"Allocation of Resources in the Soviet Union and China," Subcommittee on Priorities and Economy in Government, Joint Economic Committee, 94th Congress, 24 May & 15 June 1976, pp. XXI-XXIII.

⁵³Facts on File, Vol. 38, No. 1968, 28 July 1978, p. 563. See also John M. Collins, Imbalance of Power, (London: Presidio Press, 1978), p. 11.

⁵⁴Facts on File, Vol. 38, No. 1969, 4 Aug 1978, p. 585. Figures presented in 1975 dollars.

⁵⁵Figures are CIA estimates. Other allocations include 10% for strategic weapons, and 25% on research and development. Facts on File, No. 1968, p. 563.

⁵⁶G. Grossman, "An Economy at Middle Age," Problems of Communism, Mar-Apr 1976, p. 33.

⁵⁷Berliner, pp. 85-86.

⁵⁸W. Griffith, "The Soviet Union and Eastern Europe," in Griffith, p. 3.

⁵⁹Odom, p. 115.

⁶⁰Ibid., p. 113.

⁶¹For example, see Schwartz, pp. 89-91.

⁶²The terms "soft" and "hard" refer to the structural ability of a target to withstand the effects of a nuclear detonation; and range from those targets totally vulnerable, e. g. personnel, standard house construction, etc., to those reinforced to withstand certain degrees of damage, e. g., reinforced buildings, underground structures, etc. Hardness is measured in terms of the number of pounds per square inch a target can withstand.

⁶³The formula is expressed as $EMT = Y^{2/3}$. For example, the EMT of a 2 MT warhead detonated on a "soft" target would be approximately 1.6 megatons ($EMT = \sqrt[3]{2 \text{ MT}^2} = 1.5874 \text{ MT}$).

⁶⁴The formula is expressed as $CMP = Y^{2/3}(CEP)^2$. Thus, a 2 MT warhead with a CEP of .5 nautical miles delivered against a "hard" target would yield a CMP of approximately .4 megatons or 4 KT ($CMP = \sqrt[3]{2 \text{ MT}^2} \times (.5)^2 = 1.5874 \times .25 = .39685 \text{ MT}$). Note the drastic decrease over EMT in lethal power when accuracy becomes a factor in calculation.

⁶⁵John M. Collins, testimony in Congressional Record, 5 Aug 1977, p. S14075.

⁶⁶The International Institute for Strategic Studies (IISS), The Military Balance 1978-1979, (London: IISS, 1978), p. 81.

⁶⁷Lynn E. Davis and Warner R. Schilling, "All You Ever Wanted to Know About MIRV and ICBM Calculations But Were Not Cleared To Ask," Journal of Conflict Resolution, (Vol. 17, No. 2, Jun 1973), pp. 216, 217.

⁶⁸Other means available to reduce the vulnerability of an ICBM force consist of active defenses, e.g., an antiballistic missile system, or passive defenses which include concealment (through adoption of a mobile deployment posture), or increased hardening of silos.

⁶⁹By comparison, roughly 50% of U.S. ICBM's are hardened to withstand 1000 psi. The remainder are capable of supporting pressure on the order of approximately 330 psi. The International Institute for Strategic Studies, Strategic Survey 1977, (London: IISS, 1978), p. 116.

⁷⁰Ibid.

⁷¹Harold Brown, Department of Defense Annual Report, FY 1979, (Washington, D.C.: DOD, 2 Feb 1978), pp. 49, 50.

⁷²John M. Collins, Imbalance of Power, (London: Presidio Press, 1978), p. 50.

⁷³It is somewhat ironic that superior U.S. technology (accuracy and MIRV) was used as a justification for allowing the Soviet Union a greater number of ICBM's and greater throw weight in SALT I. As time has passed, the margin of this technological superiority has been reduced, and as a result, Soviet application of that capability to larger and more numerous ICBM's has yielded a more powerful force.

⁷⁴By comparison, less than five percent of U.S. ICBM's have yields within this range, i.e., 54 Titan II ICBM's with a yield of 10 MT each. Collins in Congressional Record, p. S14079.

⁷⁵R. T. Pretty, ed. Jane's Weapons Systems 1978, New York: Franklin Watts Inc., 1977), pp. 10, 11. Jane's further reports that certainty about the deployment of the Mod Three version is made more questionable by the fact that there are few physical features which distinguish it from the Mods One and Two.

⁷⁶Ibid., p. 11.

⁷⁷Ibid., p. 12.

⁷⁸Ibid., p. 12.

⁷⁹Ibid., pp. 13, 14.

⁸⁰Ibid., pp. 13.

⁸¹Ibid., pp. 13, 14.

⁸²Editor, "Grim New Intelligence Assessment Released on USSR Strategic Arms," Armed Forces Journal, April 1979, p. 11.

⁸³IISS, p. 81.

⁸⁴Pretty, p. 14.

⁸⁵IISS, p. 81.

⁸⁶The US ICBM arsenal consists of three weapons systems: 54 Titan II missiles first deployed in 1962, with a single ten megaton warhead, 7,500 pound throw weight, range of 7,250 miles, and a CEP of .8 nautical miles; 450 Minuteman II's deployed in 1966, with a single one megaton warhead, 1,500 pound throw weight, range of 8,000 miles, and a CEP of .3 nautical miles; and 550 Minuteman III's deployed in 1970, with a three MIRV warhead each possessing a yield of 170 kilotons, a 2,000 pound throw weight, range of 8,000 miles, and a CEP of .2 nautical miles. IISS, p. 80, and Collins, Imbalance of Power, p. 49.

⁸⁷See figure five.

⁸⁸Interview with Secretary of Defense Harold Brown in New York Times, "Brown Sees Buildup by Soviets in Missiles," 16 September 1977, p. 9. See also DoD Authorization, FY 1978, (Washington: GPO, 1977), Part 10, pp. 6859-60.

⁸⁹William R. Kintner and Robert L. Pfaltzgraff, Jr., ed. SALT: Implications for Arms Control in the 1970's, Pittsburg: University of Pittsburg Press, 1973), p. 73.

⁹⁰To avoid a distorted picture of the Soviet "Theater strategic" threat, it is necessary to take notice of the strategic nuclear forces of Western Europe. Great Britain possesses 64 SLBM's capable of delivering 192 warheads. The French nuclear arsenal consists of a "mini-triad" of 18 IRBM's, 48 SLBM's, and 36 bombers for a combined capability of 102 deliverable warheads. Another power, perceived by the Soviet Union to constitute a threat is China, believed capable of delivering in excess of 170 warheads. Frank Barnaby and Ronald Huiskens, Arms Controlled, (Cambridge: Harvard University Press, 1975), p. 123.

⁹¹MRBM's are those ballistic missiles with a range of less than 1500 miles IRBM's are capable of ranges from 1500 to 4000 miles.

⁹²Pretty, pp. 9, 13, 14.

⁹³The SLBM force would, however, present an effective weapon capable of destroying airfields used to launch strategic bombers and submarine bases.

⁹⁴John E. Moore, ed., Jane's Fighting Ships 1978-1979, (New York: Franklin Watts, Inc., 1978), p. 487.

⁹⁵Collins, Imbalance of Power, pp. 56, 57.

⁹⁶IISS, p. 81.

⁹⁷Pretty, pp. 15, 16.

⁹⁸Ibid., p. 15.

⁹⁹Ibid., pp. 15, 16.

¹⁰⁰Ibid., pp. 15-17.

¹⁰¹Gen. George S. Brown, United States Military Posture for FY 1979, (Washington: JCS, 1978), p. 30.

¹⁰²IISS, pp. 8, 81.

¹⁰³Pretty, pp. 15, 17.

¹⁰⁴By means of comparison, the U.S. has 41 ballistic missile submarines which carry 160 SLBM's with 3 MRV 200 KT warheads each, and 496 SLBM's with 10MIRV 50KT warheads each, for a total of some 656 SLBM's. IISS, p. 80.

¹⁰⁵G. S. Brown, op. cit., pp. 27, 28. See also William Schneider, "Survivable ICBM's," Strategic Review, Vol. 6, No. 4, (Fall 1978), p. 17.

¹⁰⁶Collins, Imbalance of Power, pp. 60, 61.

¹⁰⁷John Taylor, ed. Jane's All the World's Aircraft 1976-1977, (New York: Franklin Watts Inc., 1976), pp. 431, 436-438.

¹⁰⁸Collins, Imbalance of Power, pp. 60, 61.

¹⁰⁹John Taylor, ed., Jane's All the World's Aircraft 1978-1979, (New York: Franklin Watts Inc., 1978), p. 202.

¹¹⁰Ibid., pp. 201, 202.

¹¹¹The unrefueled combat radius of the B-52G is reported to be 3385 miles. Collins, Imbalance of Power, op. cit., p. 60.

- ¹¹²Taylor, 1978-1977, p. 202.
- ¹¹³Harold Brown, p. 47.
- ¹¹⁴Taylor, 1978-1977, p. 202.
- ¹¹⁵Collins, Imbalance of Power, p. 61.
- ¹¹⁶Editor, "New Soviet Bomber Brown Said 'May be Rolled Out in Near Future' is Flying," Armed Forces Journal, April 1979, p. 11; see also Harold Brown, p. 51.
- ¹¹⁷L.A. Times Service, "U.S. Surprised by Russians' Use of Backfire Bomber in Missile Test," Monterey Peninsula Herald, 3 Feb 1979, p. 2.
- ¹¹⁸By comparison, the U.S. strategic bomber force consists of 366 B-52 and 66 FB-111A aircraft, IISS, p. 82.
- ¹¹⁹Pretty, pp. 17, 18, 218.
- ¹²⁰R. T. Pretty, ed., Jane's Weapon Systems 1977, (New York: Franklin Watts Inc., 1976), p. 17.
- ¹²¹Pretty, Jane's 1978, p. 218.
- ¹²²Collins, Imbalance of Power, p. 103, see also Harold Brown, p. 51.
- ¹²³Pretty, Jane's 1978, p. 218.
- ¹²⁴Harold Brown, p. 51.
- ¹²⁵Ibid., p. 52. See also CIA study released 19 Jul 1978, Facts on File, Vol. 38, No. 1968, 28 Jul 1978, pp. 563, 564, and J. L. Frisbee, "The Imbalance in Civil Defense," Air Force Magazine, Feb 1977, pp. 53-57.
- ¹²⁶Leon Goure, War Survival in Soviet Strategy, (Coral Gables: University of Miami, 1976), pp. 5, 191-210.
- ¹²⁷Frisbee, pp. 53-57.
- ¹²⁸Harold Brown, p. 52.
- ¹²⁹Goure, p. 140.
- ¹³⁰Norman Polmar, Strategic Weapons: An Introduction, (New York: Crane, Russak, 1975), p. 60. By means of comparison, 10 U.S. cities house 25% of the population and 33% of the industrial capacity, 100 cities contain 48% population and 65% industry, and 1000 urban centers account for 63% population and 86% industry. All figures reflect 1970 distribution.

- ¹³¹For example, see Fred M. Kaplan, "The Soviet Civil Defense Myth," Bulletin of the Atomic Scientists, Mar 1978, p. 14. See also Les Aspin, "Soviet Civil Defense: Myth and Reality," Arms Control Today, Sep 1976.
- ¹³²Calculations based on historical statistics contained in IISS, p. 83. Backfire excluded from strategic bombers.
- ¹³³Harold Brown, p. 62.
- ¹³⁴Barry M. Blechman, et. al., The Soviet Military Buildup and U.S. Defense Spending, (Washington: The Brookings Institution, 1977), p. 8.
- ¹³⁵Ibid.
- ¹³⁶Pretty, Jane's 1978, pp. 8-9.
- ¹³⁷Harold Brown, p. 51.
- ¹³⁸Ibid., p. 49.
- ¹³⁹Clarence A. Robinson, "U.S. Pushes Development of Beam Weapons," Aviation Week & Space Technology, Oct 2, 1978, p. 14.
- ¹⁴⁰_____, "Soviets Test Beam Technologies in Space," Aviation Week & Space Technology, Nov 13, 1978, pp. 14, 16.
- ¹⁴¹Ibid., p. 20. This contrasts with the earliest possible deployment of a similar U.S. system in the 1986-1989 time frame.
- ¹⁴²Harold Brown, p. 46.
- ¹⁴³Ibid., p. 62.
- ¹⁴⁴Collins, Imbalance of Power, p. 74.
- ¹⁴⁵Ibid., pp. 112, 114.
- ¹⁴⁶James R. Schlesinger, Briefing on Counterforce Attacks Before the Subcommittee on Arms Control, International Law and Organization of the Senate Committee on Foreign Relations, 11 Sep 1974, as quoted in R. J. Rummel, "Will the Soviet Union Soon Have a First-Strike Capability?," Orbis, (Vol. 20, No. 3, Fall 1976), p. 582.
- ¹⁴⁷William F. Scott, Soviet Sources of Military Doctrine and Strategy, (New York: Crane, Russak & Co., 1975), p. 4.
- ¹⁴⁸Geoffrey Jukes, The Development of Soviet Strategic Thinking Since 1945, (Canberra: Australian National University Press, 1972), p. 2.
- ¹⁴⁹Gen. Col. N. A. Lomov, ed., Scientific Technical Progress and the Revolution in Military Affairs, (Moscow: Voenizdat, 1973; Vol. 3, USAF Soviet Military Thought Series), p. v.

- ¹⁵⁰Col. V. Ye Savkin, The Basic Principles of Operational Art and Tactics, (Moscow: Voenizdat, 1972; Vol. 4, USAF Soviet Military Thought Series), p. vi.
- ¹⁵¹Scott, p. 14.
- ¹⁵²"50 Years of Voyennaya Mysl'," Voyennaya Mysl', June 1968, (Foreign Press Digest (FPD) 0005/69), p. 15.
- ¹⁵³Oleg Penkovskii, The Penkovskii Papers, (New York: Doubleday & Co., 1965), pp. 257-258.
- ¹⁵⁴Joint Chiefs of Staff, Dictionary of Military and Associated Terms, (Washington: US Government Printing Office (GPO), 1974), p. 112.
- ¹⁵⁵Gen. Col. A. I. Radzivevskiv, Dictionary of Basic Military Terms, (Moscow: Voenizdat, 1965; Vol. 9, USAF Soviet Military Thought Series), p. 37.
- ¹⁵⁶Gen. Maj. S. N. Kozlov, The Officer's Handbook, (Moscow: Voenizdat, 1971; Vol. 13, USAF Soviet Military Thought Series), p. 62.
- ¹⁵⁷Ibid.
- ¹⁵⁸Ibid., p. 63.
- ¹⁵⁹M.S.U. A. A. Grechko, The Armed Forces of the Soviet State, (Moscow: Voenizdat, 1975; Vol. 12, USAF Soviet Military Thought Series), p. 272.
- ¹⁶⁰Ibid., p. 276.
- ¹⁶¹Ibid., p. 272.
- ¹⁶²Ibid., p. 275.
- ¹⁶³Kozlov, pp. 47, 50, 57. Other elements of military science include the theory of training and education, the science of military history, military administration, military geography, and military technical sciences.
- ¹⁶⁴Radzivevskiv, p. 39.
- ¹⁶⁵Grechko, pp. 279-283.
- ¹⁶⁶M.S.U. V. D. Sokolovsky, Military Strategy, (Moscow: Voenizdat, 1968; USAF Foreign Technology Diversion, FTD-HT-23-555-68), p. 17. See also Lomov, p. 274.
- ¹⁶⁷Kozlov, p. 65.
- ¹⁶⁸Ibid., p. 65.

¹⁶⁹Ibid., pp. 65-66.

¹⁷⁰Robert Legvold, "Strategic Doctrine and SALT: Soviet and American Views," Survival, Vol. XXI, No. 1, (Jan-Feb 1979), p. 9.

¹⁷¹Ibid., p. 8.

¹⁷²Radzivevskiy, p. 37.

¹⁷³M.S.U. R. Malinovskiy, "Terrible Lessons of History," Voyennaya Mysl', Jun 1966, (Foreign Press Information Report (FPIR) 0503/67), p. 17.

¹⁷⁴Ibid., p. 5.

¹⁷⁵Ibid.

¹⁷⁶Ibid.

¹⁷⁷M.S.U. K. Moskalenko, "Constant Combat Readiness is a Strategic Category," Voyennaya Mysl', January 1969, (FPD 0087/69), p. 15.

¹⁷⁸Malinovskiy, p. 15.

¹⁷⁹Gen. Maj. N. Vasendin, and Col. N. Kuznetsov, "Modern Warfare and Surprise Attack," Voyennaya Mysl', Jun 1968, (FPD 0005/69), p. 48.

¹⁸⁰Gen. Lt. I. Zavyalov, "The Creative Nature of Soviet Military Doctrine," Red Star, 19 Apr 1973, as translated in Strategic Review, Vol. II, No. 1. (Winter 1974), p. 87. See also N. V. Karabanov, "The Philosophical Inheritance of V. I. Lennin and Problems of Contemporary War," as translated in Strategic Review, (Winter 1974), p. 98; and Kozlov, p. 63.

¹⁸¹Lomov, pp. 5-7.

¹⁸²Ibid., p. 273.

¹⁸³Ibid., p. 274.

¹⁸⁴Ibid.

¹⁸⁵Ibid. For a similar description of these four characteristics of the revolution in military affairs, see also Gen. Lt. I. Zavyalov, "The New Weapon and Military Art," Red Star, 30 Oct 1970, as translated in Selected Soviet Military Writings 1970-1975, Vol. II, USAF Soviet Military Thought Series, pp. 208-210.

¹⁸⁶Col. I. Sidel'nikov, "Peaceful Coexistence and the Security of the People," Red Star, 14 Aug 1973, as translated in Selected Soviet Military Writings 1970-1975, Vol. II, USAF Soviet Military Thought Series, p. 41.

¹⁸⁷Cpt. 1st Rank V. Kulakov, "Problems of Military-Technical Superiority," Voyennaya Mysl', Jan 1964, Foreign Document Division (FDD) #939, p. 2.

¹⁸⁸Col. D. D. Gorbatenko, "The Time Factor in Modern Combat," as translated in Selected Soviet Military Writings 1970-1975, Vol. II, USAF Soviet Military Thought Series, p. 236.

¹⁸⁹Grechko, p. 281.

¹⁹⁰Col. M. P. Skirido, The People, the Army, the Commander, (Moscow: Voenizdat, 1970; Vol. 14, USAF Soviet Military Thought Series), pp. 77-78.

¹⁹¹Savkin, pp. 65-66.

¹⁹²Cpt. 1st Rank N. Voyunenkov, "Commentary," Voyennaya Mysl', (FDD 962), p. 23.

¹⁹³Col. A. A. Sidorenko, The Offensive, (Moscow: Voenizdat, 1970; Vol. 1, USAF Soviet Military Thought Series), p. vii.

¹⁹⁴Zavyalov, p. 209.

¹⁹⁵Skirido, pp. 78-79. The author cites the experiences of World War II to illustrate this point. The "Phony War," which existed between Germany and France and Great Britain during the period September 1939 and the spring of 1940, lacked decisive action because it represented conflict among members of a same coalition. On the other hand, the savage brutality which characterized operations on the Eastern Front was caused by the fact that it consisted of a fight to the death among opposing social coalitions.

¹⁹⁶Kulakov, p. 1.

¹⁹⁷Gen. Maj. A. S. Milovidov, "A Philosophical Analysis of Military Thought," Red Star, 17 May 1973, as translated in Vol. II, USAF Soviet Military Thought Series, p. 71. (Emphasis added.)

¹⁹⁸Radzivevskiy, p. 191.

¹⁹⁹LTC G. Miftiyev, "Commentary," Voyennaya Mysl', November 1965, (FDD 953), p. 28.

²⁰⁰Malinovskiy, p. 17.

²⁰¹Col. V. Vasin, "Commentary," Voyennaya Mysl', November 1965, (FDD 953), p. 33.

²⁰²M.S.U. V. Sokolovskiy and Gen. Maj. M. Cherednichenko, "Military Strategy and Its Problems," Voyennaya Mysl', October 1968, (FPD 0084/69), p. 36.

- ²⁰³Vasendin, p. 44.
- ²⁰⁴Sokolovskiy in Voyennaya Mysl', p. 38.
- ²⁰⁵Vasin, pp. 31-33.
- ²⁰⁶Skirido, p. 19.
- ²⁰⁷Savkin, p. 95.
- ²⁰⁸Skirido, p. 103.
- ²⁰⁹Gen. of Army S. Ivanov, "Soviet Military Doctrine and Strategy," Voyennaya Mysl', May 1969, (FPD 00116/69), p. 50.
- ²¹⁰Savkin, p. 65; see also Skirido, p. 79.
- ²¹¹Ivanov, p. 46.
- ²¹²Kulakov, p. 2. In fact, the Soviet definition of "superiority in men and equipment" ascribes preeminence in nuclear weapons as the primary criteria. Radzivevskiv, p. 172.
- ²¹³Col. B. Byely, et. al., Marxism-Leninism on War and Army, (Moscow: Voenizdat, 1972; Vol. 2, USAF Soviet Military Thought Series), p. 259.
- ²¹⁴M.S.U. S. S. Biryuzov, "The Lessons of the Beginning Period of the Great Patriotic War," Voyennaya Mysl', August 1968, (FDD 904), p. 29.
- ²¹⁵Sokolovskiy in Voyennaya Mysl', p. 42.
- ²¹⁶Lomov, p. 253.
- ²¹⁷Radzivevskiv, pp. 224-225.
- ²¹⁸Gen. Maj. V. Zemskoy, "Wars of the Modern Era," Voyennaya Mysl', May 1969, (FPD 0116/69), pp. 62-63.
- ²¹⁹Radzivevskiv, p. 225.
- ²²⁰Zemskov, p. 63.
- ²²¹Ibid. (Emphasis added.)
- ²²²For example, see LTC I. Rustunov, "Basic Stages in the Development of Soviet Military-Historical Science," Voyennaya Mysl', January 1964, (FDD 939), p. 22.; see also Lomov, p. 140.
- ²²³Skirido, p. 116.
- ²²⁴Gen. Maj. Kh. Dzhelaukaov, "The Augmentation of Strategic Efforts in Modern Armed Conflict," Voyennaya Mysl', January 1964, (FDD 939), p. 22.

²²⁵Gen. Maj. K. Sevast'yanov, "Comments on the Article 'Augmenting Strategic Efforts in Modern Armed Conflict'," Voyennaya Mysl', September 1964, (FDD 896), p. 34.

²²⁶Dzhelaukaov, p. 23.

²²⁷Ibid., p. 22.

²²⁸Byely, p. 217.

²²⁹M.S.U. Malinovskiy quoted in Miftiyev, p. 33.

²³⁰Radzivevskiy, p. 35.

²³¹Savkin, p. 230.

²³²Vasendin, p. 42.

²³³Moskalenko, p. 14.

²³⁴Col. A. Psotovalov, "The Nature of Combat Operations of Air Defense Troops," Voyennaya Mysl', January 1968, (FPD 0093/68), p. 26.

²³⁵Sidorenko, p. 115.

²³⁶Col. B. Aleksandrov and Col. A. Yur'yev, "Air and Space Reconnaissance in Armed Conflict," Voyennaya Mysl', October 1965, (FDD 961), p. 1.

²³⁷Skirido, p. 109.

²³⁸Lomov, p. 159.

²³⁹Vasendin, p. 48.

²⁴⁰Savkin, p. 233.

²⁴¹Ibid., p. 235.

²⁴²Vasendin, p. 43.

²⁴³Ibid., p. 44.

²⁴⁴Ibid.

²⁴⁵Ibid., pp. 44, 45.

²⁴⁶Ibid.

²⁴⁷Ibid., p. 46. This analysis is interesting for several reasons. First, it represents a perception of the overwhelming importance of constant vigilance not to be deceived by the relaxation of international tensions. A variety of this paranoia may have found expression in the Soviet's hard line approach to SALT. Second, it indicates the depth with which attainment of the surprise factor is analyzed by the Soviet military.

²⁴⁸Ibid., p. 43.

²⁴⁹There appears to be some debate on this issue in Western analytical assessments. While Leon Goure maintains all terms connote the same strategic intention (Leon Goure, The Role of Nuclear Forces in Current Soviet Strategy, (Washington D.C.: Center for Advanced International Studies) pp. 105-106.), Richard Pipes presents the following distinctions: A preventive strike, i.e., unprovoked surprise attack, would never be initiated by the Soviet Union. Once, however, the USSR concluded an attack was imminent, it would not hesitate to launch a preemptive strike. (Richard Pipes, "Why the Soviet Union Thinks it Could Fight and Win a Nuclear War," Commentary, Vol. 61, No. 1 (July 1977), p. 31.)

²⁵⁰M.S.U. N. Krylov, "The Nuclear Missile Shield of the Soviet State," Voyennaya Mysl', November 1967, (FPD 0157/68), p. 17.

²⁵¹Gen. Maj. V. Zemskov, "Characteristic Features of Modern Wars and Possible Methods of Conducting Them," Voyennaya Mysl', July 1969, (FPD 0022/70), p. 20. (Emphasis in original.)

²⁵²Zavyalov, pp. 210-211.

²⁵³Gen. Maj. Kh. Dzelaikhov, "The Infliction of Deep Strikes," Voyennaya Mysl', February 1966, (FPD 0763/67), p. 44.

²⁵⁴Ibid.

²⁵⁵Gen. Maj. (Engineer-Technical) S. I. Anureyev, "Determining the Correlation of Forces in Terms of Nuclear Weapons," Voyennaya Mysl', June 1967, (FPD 0112/68), p. 42.

²⁵⁶Ibid., p. 36.

²⁵⁷Dzelaikhov, p. 43.

²⁵⁸Sidorenko, p. 42.

²⁵⁹Dzelaikhov, pp. 43-44.

²⁶⁰Miftiyev, p. 31.

²⁶¹Col. M. Shirokov, "Military Geography at the Present Stage," Voyennaya Mysl', November, 1966, (FPD 0730/67), p. 59.

²⁶²Aleksandrov, p. 4.

²⁶³Ibid., p. 5.

²⁶⁴Sokolovsky, Military Strategy, p. 279.

²⁶⁵Skirido, pp. 77-78.

²⁶⁶Gen. Maj. K. Stepanov and LTC Ye. Rybkin, "The Nature and Types of Wars of the Modern Era," Voyennaya Mysl', February 1968, (FPD 0042/69), p. 68.

²⁶⁷Col. V. Mochalov, "Types of War According to the Pentagon," Voyennaya Mysl', September 1964, (FDD 896), p. 81.

²⁶⁸Zemskov, p. 23.

²⁶⁹See for example G. A. Arbatov, "The American Strategic Debate: A Soviet View," Survival, Vol. 16, No. 3 (May-Jun 1974), p. 113, wherein any use of nuclear weapons is equated with general nuclear war; see also Ivanov, p. 47; and L. S. Semeyko, "New Forms but the Same Content," Red Star, 8 Apr 1975, as translated in Selected Soviet Military Writings 1970-1975, Vol. II, USAF Soviet Military Thought Series, p. 58.

²⁷⁰Cpt. 1st Rank A. Kvitnitsky and Cpt. (Res) Yu. Nepodayev, "The Theory of the Escalation of War," Voyennaya Mysl', September 1965, (FDD 952), p. 26.

²⁷¹Gen. Maj. A. S. Milovidov and Col. V. G. Kozlov, eds., Problems of Contemporary War, (Moscow: Voenizdat, 1972; Vol. 5, USAF Soviet Military Thought Series), p. 17.

²⁷²Gen. Maj. A. Korniyenko and Cpt. V. Korolev, "Economic Aspects of Soviet Military Doctrine," Voyennaya Mysl', August 1967, (FPD 0120/68), p. 29.

²⁷³Mochalov, p. 81.

²⁷⁴Skirdo, p. 35.

²⁷⁵Col. A. Yekimovskiy, "Concerning the Nature and Classifications of Certain Phenomena in Armed Struggle," Voyennaya Mysl', July 1965, (FDD 962), p. 17.

²⁷⁶Col. P. Shkarubskiy, "Comment," Voyennaya Mysl', July 1965, (FDD 962), p. 27.

²⁷⁷Yekimovskiy, p. 17.

²⁷⁸Vasendin, p. 43.

²⁷⁹Skirdo, p. 102.

²⁸⁰Ibid., p. 19.

²⁸¹Facts on File, Vol. 38, No. 1990, 31 Dec 1978, p. 995; and Vol. 39, No. 2005, 13 Apr 1979, p. 258.

²⁸²U.S. Arms Control and Disarmament Agency, Arms Control and Disarmament Agreements, (Washington: USACDA, Jun 1977), p. 145.

²⁸³Harold Brown, "The International Situation and SALT," Command Magazine, Vol. 2, No. 4, (Apr 1979), p. 3.

²⁸⁴Ibid., pp. 3, 5.

²⁸⁵U.S. Arms Control and Disarmament Agency, Documents on Disarmament, 1974, (Washington: USACDA, May 1976), p. 261.

²⁸⁶G. A. Arbatov, "The American Strategic Debate: A Soviet View," Survival, Vol. 16, No. 3, (May-Jun 1974), p. 133.

BIBLIOGRAPHY

- Aleksandrov, B., Col., and Yur'yev, A., Col., "Air and Space Reconnaissance in Armed Conflict," Voyennaya Mysl', Oct 1965, Foreign Document Division (FDD) number 961, p. 1.
- Alekseyev, V., LTC, "The Ideological Struggle and Modern War," Voyennaya Mysl', Sept 1966, Foreign Press Digest (FPD) number 0558/67, p. 21.
- Altunin, A. T. "Move Forward Onward," translated in Strategic Review, Vol. 3, No. 3, (Summer 1975), p. 118.
- Anureyev, S. I., Gen. Maj., "Determining the Correlation of Forces in Terms of Nuclear Weapons," Voyennaya Mysl', June 1967, FPD 0112/68, p. 42.
- Arbatov, G. A., "The American Strategic Debate: A Soviet View," Survival, Vol. 16, No. 3, (May - Jun 1974), p. 113.
- Arnett, Robert L., "Soviet Military Doctrine," Arms Control Today, Vol. 8, No. 9, (Oct 1978), p. 1.
- Aspaturian, Vernon V. Process and Power in Soviet Foreign Policy. Boston: Little, Brown and Co., 1971.
- Aspin, Les, "What Are the Russians Up To?," International Security, Vol. 3, No. 1, (Summer 1978), p. 30.
- _____, "Soviet Civil Defense: Myth and Reality," Arms Control Today, Sept. 1976.
- Barnaby, Frank and Huisken, Arms Uncontrolled, Cambridge: Harvard University Press, 1975.
- Barton, John N. and Weiler, Lawrence D., eds., International Arms Control, Stanford: Stanford University Press, 1976.
- Bertram, Christoph, The Future of Arms Control: Part I, Beyond SALT II, London: International Institute for Strategic Studies, 1978.
- _____, The Future of Arms Control: Part II, Arms Control and Technological Change, London: International Institute for Strategic Studies, 1978.
- Biryuzov, S. S., M.S.U., "The Lessons of the Beginning Period of the Great Patriotic War," Voyennaya Mysl', Aug 1968, FDD 904, p. 29.
- Blechman, Barry M. The Soviet Military Buildup and U.S. Defense Spending, Washington: The Brookings Institution, 1977.

- Bogdanov, R. and Semeiko, L., "Soviet Military Might: A Soviet View," Fortune, 26 Feb 1979, p. 46.
- Borisov, V., Col., "The Myth About the Soviet Threat," Soviet Military Review, Jan 1979, p. 50.
- Borklund, C. W., "Strategic Nuclear Balance is Not Enough," Government Executive, Dec 1976, p. 24.
- Brennan, Donald G., Arms Treaties with Moscow: Unequal Terms Unevenly Applied?, New York: National Strategy Information Center, 1975.
- Brodie, Bernard, The Development of Nuclear Strategy, Los Angeles: Center for Arms Control and International Security, 1978.
- Brown, George S., United States Military Posture for FY 1979, Washington: JCS, 1978.
- Brown, Harold, "The International Situation and SALT," Command Magazine, Vol. 2, No. 4, (Apr 1979), p. 1.
- _____, Department of Defense Annual Report, FY 1979, Washington: DOD, 1978.
- Burt, Richard, "Soviet Reported to Add to Load Missile Can Fire," New York Times, 14 Mar 1979, p. 1.
- Byely, B., Col., et. al., Marxism-Leninism On War and Army, Moscow: Voenizdat, 1972; Vol. 2, USAF Soviet Military Thought Series, Washington, D.C.: GPO.
- Cline, Ray S. World Power Assessment 1977. Washington, D.C.: Center for Strategic and International Studies, 1977.
- Collins, John M., "Testimony in the Senate Congressional Record, 5 Aug 1977," Washington: GPO, 1977.
- _____, Imbalance of Power, London: Presidio Press, 1978.
- Congressional Budget Office, Counterforce Issues for the U.S. Strategic Nuclear Forces, Washington: GPO, 1978.
- Committee on the Present Danger, Is America Becoming Number 2?, Washington, D.C.: Committee on the Present Danger, 5 Oct 1978.
- Danchenko, A. M., Col., and Vydrin, I. F., Col., Military Pedagogy, Moscow: Voenizdat, 1973; Vol. 7, USAF Soviet Military Thought Series.
- Davis, Jacquelyn K., et. al., SALT II and the Search for Strategic Equivalence, Lexington: D.C. Heath and Co., 1975.

Davis, Lynn C. and Schilling, Warner R., "All You Ever Wanted to Know About MIRV and ICBM Calculations But Were Not Cleared to Ask," Journal of Conflict Resolution, Vol. 17, No. 2 (Jun 1973), p. 207.

Deane, Michael J. "The Soviet Assessment of the Correlation of World Forces: Implications for American Foreign Policy," Orbis, Vol. 20, No. 3, (Fall, 1976), p. 630.

_____, Political Control of the Soviet Armed Forces, New York: Crane, Russak and Company, 1977.

Department of Defense, DoD Authorization, FY 1978, Washington: GPO, 1977.

Douglas, Joseph D. Jr., The Soviet Theater Nuclear Offensive, Washington, D.C.: GPO, 1975.

_____, and Hoeber, Amoretta M., "The Nuclear Warfighting Dimension of the Soviet Threat to Europe," The Journal of Social and Political Studies, Vol. 3, No. 2, p. 109.

Dzelaukhov, Kh., Gen. Maj., "The Infliction of Deep Strikes," Voyennaya Mysl', Feb 1966, FPD 0763/67, p. 44.

_____, "The Augmentation of Strategic Efforts in Modern Armed Conflict," Voyennaya Mysl', Jan 1964, FDD 939, p. 15.

Editor, "New Soviet Bomber Brown said 'May be Rolled Out in Near Future' is Flying," Armed Forces Journal, Apr 1979, p. 11.

_____, "Grim New Intelligence Assessment Released on USSR Strategic Arms," Armed Forces Journal, Apr 1979, p. 11.

Editor, "US-USSR: Contrasting Views of Nuclear War," National Security Record, Mar 1979, p. 1.

Editor, "The Real Paul Warnke," The New Republic, 26 Mar 1977, p. 22.

Editors, "50 Years of Voyennaya Mysl'," Voyennaya Mysl', Jun 1968, FPD 0005/69, p. 14.

Egan, E. W. Kings, Rulers, and Statesmen. New York: Crane, Russak and Company, 1977.

Erickson, John. "Soviet Military Policy in the 1980's," Current History, Vol. 75, No. 440, (Oct 1978), p. 97.

_____, "The Chimera of Mutual Deterrence," Strategic Review, Vol. 6, No. 2, (Spring 1978), p. 11.

Facts on File, Vol. 38, No. 1968, 28 Jul 1978, p. 563.

_____, Vol. 38, No. 1969, 4 Aug 1978, p. 585.

_____, Vol. 38, No. 1990, 31 Dec 1978, p. 995.

_____, Vol. 39, No. 2005, 13 Apr 1979, p. 258.

Frank, Lewis A., Soviet Nuclear Planning, Washington, D.C.: American Enterprise Institute, 1977.

Frisbee, J. L., "The Imbalance in Civil Defense," Air Force Magazine, Feb 1977, p. 53.

Garthoff, Raymond L., Soviet Strategy in the Nuclear Age, New York: Praeger Publishers, 1958.

_____, The Soviet Military and Arms Control, Los Angeles: Center for Arms Control and International Security, 1977.

Gilbert, Stephen. Soviet Images of America. New York: Crane, Russak and Company, 1977.

Glastone, Samuel, and Dolan, Philip, The Effects of Nuclear Weapons, Washington: DoD, 1977.

Gorbatenko, D.D., Col., "The Time Factor in Modern Combat," translated in Selected Soviet Military Writings 1970-1975, Vol. II, USAF Soviet Military Thought Series, p. 234.

Goure, Leon, et. al., The Role of Nuclear Forces in Current Soviet Strategy, Coral Gables: University of Miami, 1975.

_____, War Survival in Soviet Strategy, Coral Gables: University of Miami, 1976.

Grechko, A.A., M.S.U., "Under the Banner of the Great October Revolution," translated in Strategic Review, Vol. 3, No. 3, (Summer 1975), p. 116.

_____, "Soviet Military Science and Military Art During the Great Patriotic War," translated in Strategic Review, Vol. 3, No. 3, (Summer 1975), p. 99.

_____, The Armed Forces of the Soviet State, Moscow: Voenizdat, 1975; Vol. 12, USAF Soviet Military Thought Series.

Griffith, William E. (ed.) Soviet Empire: Expansion and Detente. Lexington: Lexington Books, 1976.

Grossman, G. "An Economy at Middle Age," Problems of Communism, Mar-Apr 1976, p. 33.

Gurov, A., Col. "Economics and War," Voyennaya Mysl', Jul 1965, FDD 962, p. 1.

Hannes, Adomeit, Soviet Risk Taking and Crisis Behavior: From Confrontation to Coexistence, London: International Institute for Strategic Studies, 1973.

Hingley, Ronald. The Russian Mind. London: The Bodley Head, 1978.

Hoeber, Francis P. and Schneider, William Jr., Arms, Men, and Military Budgets, New York: Crane, Russak and Co., 1977.

International Institute for Strategic Studies, The Military Balance 1976-1977, London: International Institute for Strategic Studies, 1976.

_____, The Military Balance 1977-1978, London: International Institute for Strategic Studies, 1977.

_____, The Military Balance 1978-1979, London: International Institute for Strategic Studies, 1978.

_____, Strategic Survey 1977, London: IISS, 1978.

Ivanov, S., Gen of Army, "Soviet Military Doctrine and Strategy," Voyennaya Mysl', May 1969, FPD 0116/69, p. 40.

Johansen, Robert C., The Vladivostok Accord, Princeton: Center for International Studies, 1976.

Joint Chiefs of Staff, Dictionary of Military and Associated Terms, Washington: GPO, 1974.

Jones, Christopher D., "Soviet Military Doctrine, the Political Dimension," Arms Control Today, Vol. 8, No. 9, (18 Oct 1978), p. 7.

Jukes, G. The Development of Soviet Strategic Thinking Since 1945, Canberra: Australian National University Press, 1972.

Kahn, Herman, On Escalation, New York: Praeger Publishers, 1965.

_____, On Thermonuclear War, Princeton: Princeton University Press, 1960.

_____, Thinking About the Unthinkable, New York: Horizon Press, 1962.

Kaplan, Fred M., "The Soviet Civil Defense Myth," Bulletin of the Atomic Scientists, Mar 1978, p. 14.

Karabanov, N. V., "The Philosophical Inheritance of V.I. Lenin and Problems of Contemporary War," translated in Strategic Review, Vol. 2, No. 1, (Winter 1974), p. 95.

- Katz, A. H., Verification and SALT, Washington, D.C.: The Heritage Foundation, 1979.
- Kennan, George F. The Marquis de Custine and His Russia in 1839. Princeton: Princeton University Press, 1971.
- Kintner, W. R., and Scott, H. F., The Nuclear Revolution in Soviet Military Affairs, Norman OK: University of Oklahoma Press, 1968.
- Kintner, William R. and Pfaltzgraf, Robert, L., eds., SALT: Implications for Arms Control in the 1970's, Pittsburg: University of Pittsburg Press, 1973.
- Kohler, Foy D. Understanding the Russians. New York: Harper and Row, 1970.
- Korniyenko, A., Maj. Gen., and Korolev, V., Cpt., "Economic Aspects of Soviet Military Doctrine," Voyennaya Mysl', Aug 1967, FPD 0120/68, p. 28.
- Kozlov, S., Gen. Maj., "The Formulation and Development of Soviet Military Doctrine," Voyennaya Mysl', Jul 1966, Foreign Press Information Report (FPIR) number 0475/67, p. 47.
- Kozlov, S. N., Gen. Maj., The Officer's Handbook, Moscow: Voenizdat, 1971, Vol. 13, USAF Soviet Military Thought Series.
- Krylov, N., M.S.U., "The Nuclear Missile Shield of the Soviet State," Voyennaya Mysl', Nov 1967, FPD 0157/68, p. 13.
- Kulakov, V., Cpt 1st Rank, "Problems of Military-Technical Superiority," Voyennaya Mysl', Jan 1964, FDD 939, p. 1.
- Kvitnitsky, A., Cpt 1st Rank, and Nepodayev, Yu., Cpt, "The Theory of the Escalation of War," Voyennaya Mysl', Sep 1965, FDD 952, p. 14.
- Legault, Albert and Lindsey, George, The Dynamics of the Nuclear Balance, London: Cornell University Press, 1976.
- Legvold, Robert, "Strategic 'Doctrine' and SALT: Soviet and American Views," Survival, Vol. 21, No. 1, (Jan - Feb 1979), p. 8.
- Lomov, N. A., Gen. Col., ed., Scientific and Technical Progress and the Revolution in Military Affairs, Moscow: Voenizdat, 1972, Vol. 4, USAF Soviet Military Thought Series.
- Los Angeles Times Service, U.S. Surprised by Russians' Use of Backfire Bomber in Missile Test," Monterey Peninsula Herald, 3 Feb 1979, p. 2.
- Malinovskiy, R., M.S.U., "Terrible Lesson of History," Voyennaya Mysl', Jun 1966, FPIR 0503/67, p. 1.

- Miftiyev, G., LTC. "Commentary," Voyennaya Mysl', Nov 1965, FDD 953, p. 25.
- Milovidov, A.S., Gen. Maj., "A Philosophical Analysis of Military Thought," Red Star, 17 May 1973, translated in Vol. II, USAF Soviet Military Thought Series, p. 69.
- Milovidov, A. S., Gen. Maj., Problems of Contemporary War, Moscow: Voenizdat, 1972, Vol. 5, USAF Soviet Military Thought Series.
- Mochalov, V., Col., "Types of War According to the Pentagon," Voyennaya Mysl', Sep 1964, FDD 896, p. 81.
- Moore, John E., ed., Jane's Fighting Ships 1978-1979, New York: Franklin Watt's Inc., 1978.
- Morgan, Patrick M., Deterrence, A Conceptual Analysis, London: Sage Publications, 1977.
- Moskalenko, K., M.S.U., "Constant Combat Readiness is a Strategic Category," Voyennaya Mysl', Jan 1969, FPD 0087/69, p. 13.
- New York Times, "Brown Sees Buildup by Soviets in Missiles," 16 Sep 1977, p. 9.
- Nitze, Paul, "SALT II," Shipmate, Vol. 42, No. 3, (Apr 1979), p. 20.
- Odom, William C., "Who Controls Whom in Moscow," Foreign Policy, No. 19, (Summer 1975), p. 110.
- Office of Civil and Defense Mobilization, Nuclear Weapons Phenomena and Characteristics, Washington: GPO, 1961.
- Olshevskiy, V., Maj., "Some Economic Aspects of Civil Defense," Voyennaya Mysl', Dec 1968, FDD 0103/68, p. 65.
- Paxton, John, (ed.) The Statesman's Yearbook 1977-1978, New York: St. Martin's Press, 1977.
- Penkovskii, O., Col., The Penkovskii Papers, New York: Doubleday & Co., 1965.
- Pipes, Richard (ed.), Soviet Strategy in Europe, New York: Crane, Russak and Company, 1976.
- _____, "Why the Soviet Union Thinks it Could Fight and Win a Nuclear War," Commentary, Vol. 64, No. 1, (July 1977), p. 21.
- Polmar, Norman, Strategic Weapons: An Introduction, New York: Crane, Russak and Company, 1975.

- Postovalov, A., Col., "The Nature of Combat Operations of Air Defense Troops," Voyennaya Mysl', Jan 1968, FPD 0093/68, p. 25.
- _____, "Modeling Combat Operations of the Ground Forces," Voyennaya Mysl', Mar 1969, FPD 0101/69, p. 48.
- Povaliy, M., Gen. Col., "Development of Soviet Military Strategy," Voyennaya Mysl', Feb 1967, FPD 0018/68, p. 61.
- Powers, Johnathan, "Interview with Georgiy Arbatov," The Observer, 12 Nov 1978.
- Pretty, R. T., ed., Jane's Weapons Systems 1978, New York: Franklin Watts Inc., 1977.
- _____, Jane's Weapons Systems 1977, New York: Franklin Watts Inc., 1976.
- Radziyevskiy, A. I., Gen. Col., Dictionary of Basic Military Terms, Moscow: Voenizdat, 1965, Vol. 9, USAF Soviet Military Thought Series.
- Robinson, Clarence A., "U.S. Pushes Development of Beam Weapons," Aviation Week & Space Technology, 2 Oct 1978, p. 14.
- _____, "Soviets Test Beam Technologies in Space," Aviation Week & Space Technology, 13 Nov 1978, p. 14.
- Rostow, Eugene V., "The Case Against SALT II," Commentary, Vol. 67, No. 2, (Feb 1979), p. 23.
- Rostunov, I., LTC., "Basic Stages in the Development of Soviet Military-Historical Science," Voyennaya Mysl', Jan 1964, FDD 939, p. 48.
- Rummel, R. J., "Will the Soviet Union Soon Have a First-Strike Capability?" Orbis, Vol. 20, No. 3, (Fall 1976), p. 579.
- Savkin, V. Ye., Col., The Basic Principles of Operational Art and Tactics, Moscow: Voenizdat, 1972, Vol. 4, USAF Soviet Military Thought Series.
- Schneider, William, "Survivable ICBM's," Strategic Review, Vol. 6, No. 4, (Fall 1978), p. 17.
- Schroeder, G. E., "Consumer Problems and Prospects," Problems of Communism, Mar-Apr 1973, p. 10.
- Schwartz, M. Foreign Policy of the U.S.S.R.: Domestic Factors. Belmont: Dickenson Publishing Co., 1975.
- Scott, W. F., Soviet Sources of Military Doctrine and Strategy, New York: Crane, Russak, and Company, 1975.

Senate Committee on Foreign Relations, United States-Soviet Strategic Options, Washington, D.C.: GPO, 1977.

_____, Briefing on SALT Negotiations, Washington, D.C.: GPO, 1978.

Semeyko, L.S., "New Forms, But the Same Contention," Red Star, 8 Apr 1975, translated in Selected Soviet Military Writings 1970-1975, Vol. II, USAF Soviet Military Thought Series, p. 56.

Sevast'yanov, K., Gen. Maj., "Comments on the Article 'Augmenting Strategic Efforts in Modern Armed Conflict'," Voyennaya Mysl', Sep 1964, FDD 896, p. 34.

Shahhnazarov, G., "On the Problem of Correlation of Forces," Kommunist, Feb. 1974, p. 86.

Shirokov, M., Col., "Military Geography at the Present Stage," Voyennaya Mysl', Nov 1966, FDD 0730/67, p. 57.

Shkarubskiy, P., Col., "Comment," Voyennaya Mysl', Jul 1965, FDD 962, p. 27.

Shulman, Marshall D., "USSR: An Overview of US-Soviet Relations," Department of State Bulletin, 26 Oct 1977.

Sidel'Nikov, I., Col., "Peaceful Coexistence and the Security of the People," Red Star, 14 Aug 1973, translated in Selected Soviet Military Writings 1970-1975, Vol. II, USAF Soviet Military Thought Series, p. 36.

Sidey, Hugh, "On Trusting the Soviets," Time, 29 Jan 1979, p. 17.

Sidorenko, A.A., Col., The Offensive, Moscow: Voenizdat, 1970; Vol. 1, USAF Soviet Military Thought Series.

Skirido, M.P., Col., The People, the Army, the Commander, Moscow: Voenizdat, 1970, Vol. 14, USAF Soviet Military Thought Series.

Smith, Hedrich. The Russians, New York: New York Times Book Company, 1976.

Sokolovsky, V.D., M.S.U., Military Strategy, Moscow: Voenizdat, 1968; USAF Foreign Technology Division, FTD-HT-23-555-68.

_____, and Cherednichenko, M., Gen. Maj., "Military Strategy and its Problems," Voyennaya Mysl', Oct 1968, FPD 0084/69, p. 32.

Solzhenitsyn, Aleksandr. Letter to the Soviet Leaders, New York: Harper and Row, 1974.

The Soviet War Machine, New York: Chartwell Books, Inc., 1976.

Srednev, M., Col., "Commentary," Voyennaya Mysl', Nov 1965, FDD 904, p. 34.

Stepanov, K., Gen. Maj., and Rybkin, Ye., LTC., "The Nature and Types of Wars of the Modern Era," Voyennaya Mysl', Feb 1968, FPD 0042/69, p. 68.

Strausz-Hupe, Robert, et. al., Protracted Conflict, New York: Harper and Brothers, 1959.

Subcommittee on Priorities and Economy in Government. Allocation of Resources in the Soviet Union and China. Joint Economic Committee, 94th Congress, 24 May and 15 June 1976.

Taylor, John, ed., Jane's All the World's Aircraft 1976-1977, New York: Franklin Watts, Inc., 1976.

_____, Jane's All the World's Aircraft 1978-1979, New York: Franklin Watts, Inc., 1978.

Trofimenko, H., "The Theology of Strategy," Orbis, Vol. 21, No. 3, (Fall 1977), p. 497.

U.S. Arms Control and Disarmament Agency, Arms Control and Disarmament Agreements, Washington, D.C.: U.S. Arms Control and Disarmament Agency, Jun 1977.

Valenta, Jiri, Soviet Invasion of Czechoslovakia, 1968: Anatomy of a Decision, Baltimore: Johns Hopkins Press, 1979.

Van Cleave, William, and Weiss, Seymour, "National Intelligence and the U.S.S.R.," National Review, 23 Jun 1978, p. 777.

_____, and Thompson, W. Scott, Strategic Options for the Early Eighties: What Can Be Done?, New York: National Strategy Information Center, 1979.

Vasendin, N., Gen. Maj., and Kuznetsov, N., Col., "Modern Warfare and Surprise Attack," Voyennaya Mysl', Jun 1968, FPD 0005/69, p. 42.

Vasin, V., Col., "Commentary," Voyennaya Mysl', Nov 1965, FDD 953, p. 31.

Volkogonov, D., Maj., "On the Moral Forces of Soviet Troops in Modern Warfare," Voyennaya Mysl', Nov 1965, FDD 953, p. 44.

Voznenko, V.V., et. al., "The New Means of Waging War and the Methods of Military Operations," translated in Strategic Review, Vol. 2, No. 1, (Winter 1974), p. 107.

V'Yunenko, N., Cpt 1st Rank, "Comment," Voyennaya Mysl', Jul 1965, FDD 962, p. 23.

_____, "Commentary," Voyennaya Mysl', Sep 1964, FDD 896, p. 42.

Warnke, Paul, "Apes on a Treadmill," Foreign Policy, No. 18, (Spring, 1975), p. 12.

_____, "SALT: An Ongoing Process," Department of State Bulletin, Apr 1978.

_____, "Strengthening United States Security Through SALT," Washington, D.C.: U.S. Arms Control and Disarmament Agency, 17 Oct 1978.

Yekimovskiy, A., Col., "Concerning the Nature and Classification of Certain Phenomena in Armed Struggle," Voyennaya Mysl', Jul 1965, FDD 962, p. 14.

Zavyalov, I., Gen. Lt., "The Creative Nature of Soviet Military Doctrine," Red Star, 19 Apr 1973, translated in Strategic Review, Vol. 2, No. 1, (Winter 1974), p. 87.

_____, "The New Weapon and Military Art," Red Star, 30 Oct 1970, translated in Selected Soviet Military Writings 1970-1975, Vol. II, USAF Soviet Military Thought Series, p. 206.

Zemskov, V., Gen. Maj., "Wars of the Modern Era," Voyennaya Mysl', May 1969, FPD 0116/69, p. 52.

_____, "Characteristic Features of Modern Wars and Possible Means of Conducting Them," Voyennaya Mysl', Jul 1969, FPD 0022/70, p. 19.

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